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MANUAL TRAINING MAGAZINE

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OCTOBER, 1905

APPLIED DESIGN, III.[1]

JAMES P. HANEY.

"The perception of appropriate quantities in design is really the decorative measure of effect."—*Walter Crane.*

PREVIOUS chapters have dealt with the fundamental problem of design, that of planning the masses which shall fill a given space, and separating the decorative elements from the background. Though so separated, it is the background and unit together which form the design. The background is a part of the pattern no less important than the decorating mass; background and unit mutually support one another.

It was noted in Article II that in some cases the decorating mass might take the form of a spot or strap-shaped element which needed no further elaboration. As a rule, however, it will be of advantage to enhance the interest of the unit and make it more attractive. This increase is to be secured by the introduction of additional lines which shall divide the mass into subordinate masses rhythmically related. Minor elements will thus be formed without destroying the relations of the mass to the space which encloses it.

If more than one mass is present, each acts as a center of interest and each, as additional lines are introduced, has given to it increased power to attract the eye. The lines of such division should primarily serve to relate the elements of the mass to one another and to the space decorated. They must in their way make for the general rhythm of the design and obey the general laws of structure.

[1] Copyright, 1905, James P. Haney.

The splitting of the decorating mass and filling it with minor elements may be termed its "elaboration". The spaces formed may either be left as geometric or abstract spots, or may be treated by the introduction of conventionalized matter derived from leaves, flowers, or other sources. Additional interest may also be created by treating the subordinate masses in various tones of black and white or color.

While the elements of the unit should remain part of the parent mass, it will often be desirable to accent the lines which bound them, the bet-

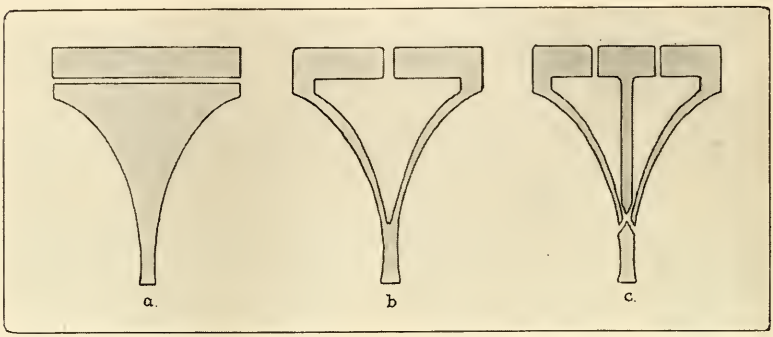


PLATE XXII.

ter to emphasize their rhythmic character. Such accentuation may be effected by slightly separating these parts one from another. A very simple illustration of this division is shown in Plate XXII (a) where a spot originally planned to include a title and decorative stamp, has been separated into these elements. In (b) a similar mass has been chosen to serve only as a stamp and has been divided into a simple panelled space by lines which repeat the movements of the border and so strengthen the structural, or as some designers term it, the "architectural" character of the form.

In (c) steps have been taken to treat the original space in more interesting fashion, after planning the main elements. It has been divided by strap-like forms into two panels and the four bounding elements have been further subdivided and separated so that the resulting shapes assume a faint resemblance to a highly conventionalized plant form, consisting of root, stem, flower, and leaves.

This figure (c) is typical of a great variety of decorative units in which growth appears, a feature characteristic of all floral forms, no matter how conventionalized. By growth is meant the development of

one form from another in the manner that Nature illustrates in her development of branch from trunk, and leaf from stem. It is marked by an upward thrust or radial movement which carries the eye out from the growth point or center. The union of stalk and parent stem is frequently a tangential one, and, when so expressed in design, adds to rhythm, the eye following with equal ease the main movement or the subordinate one.

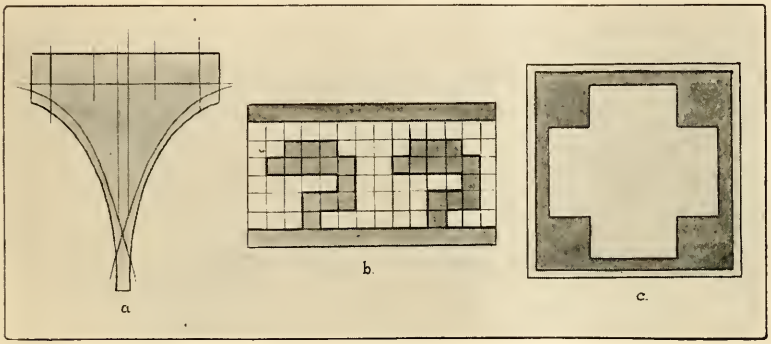


PLATE XXIII.

Further consideration of growth will be undertaken in the succeeding article on conventionalization; it must now be our concern to see the principles on which the division of the mass in question has been effected.

STEPS IN DEVELOPMENT OF MASS.

It was premised that any movements developed within the decorating mass should serve to strengthen structure and relate the elements of the mass one to another. As parallelism strengthens structure, the divisions may be planned for Plate XXII (c) by drawing certain tentative lines over the surface of the unit, making these lines parallel to the various borders of the form. Such lines are shown in Plate XXIII (a). The two paralleling the sides and that through the center serve to determine the elements which are to form the mass which incloses the two panels. These lines add to the general upward movement of the form. Such movement is aided by the division of the top mass, which itself is formed by a line passing from side to side and connecting the two halves of the stamp.

As a whole, these lines of division produce what may be termed a "net" over the surface of the original form. This net is analogous to

the square underlay which is sometimes recommended as a suggestive basis for elements in design (b). The net, however, as planned for a particular unit is of greater value than the underlay. The range of the latter is limited. Designs based upon it necessarily show a geometric harmony of space relationship, produced by the repeated use of the same unit of measure, but it can only be employed with advantage

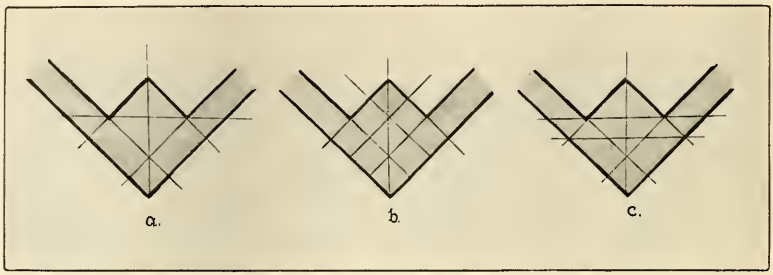


PLATE XXIV.

in rectangular forms where its own lines parallel the boundaries of the spaces to be decorated and so make possible divisions structural in character. In place of so mechanical and restrictive a basis for pattern, it is necessary for the designer who would work with freedom and individuality, to devise for himself a tentative division of the shape to be elaborated, on lines determined by its structure. In the solution of any particular problem, several arrangements of lines should be made, and the best—that showing the most satisfactory relation of areas—selected as the one to be used as a basis for the pattern. Plate XXII (c) shows the arrangement offered in Plate XXIII (a) with the elements of the top bar and the growth point below, slightly separated one from another.

VARIETY IN ELABORATION.

In the case just illustrated the net was of extreme simplicity, with a very limited choice of spaces. As a rule the designer will find it of advantage to plan an arrangement of lines permitting a greater choice and variety in the way of development. That no elaborate net is necessary to this end. will be seen on referring to Plate XXIV (a), where is shown a simple mass arrangement representing the cover of a decorative unit planned to fill a corner of the mass shown in Plate XXIII (c). Plate XXIV (a, b, c) illustrates three of the many arrangements of lines which might be used as a net upon which to develop this corner. These nets,

it will be noted, are all made up of straight lines and illustrate the simpler forms of solution of the problem. Curved lines might have been introduced, Plate XXIX (b). When used they add variety and rhythm to the shapes of the related spaces and interest to the pattern.

Remembering that each system of lines is only a basis for subsequent division, and that the spaces formed may be utilized in various ways, it

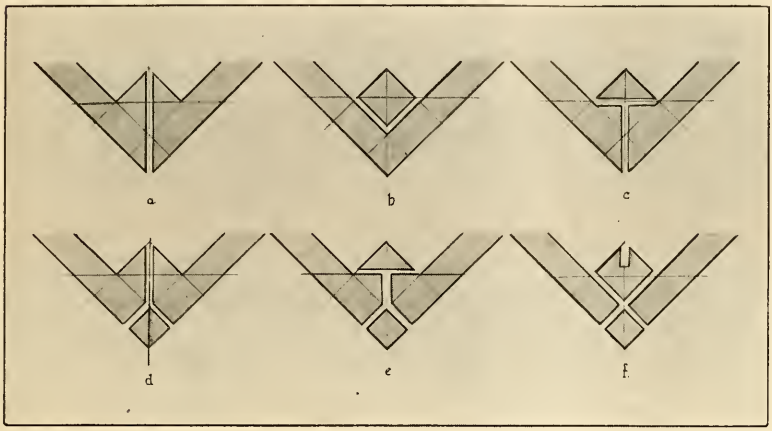


PLATE XXV.

will be seen that the method offers possiblities in the way of variations, limited in number only by the time the ingenious designer has to give to their development.

Choosing the first of the arrangements suggested, Plate XXIV (a), and allowing the eye to play over the spaces which offer, it will be seen that certain combinations of spaces may be emphasized by doubling the lines that bound them and erasing all other traces of the net, Plate XXV (a, b, c). Further consideration will show a number of other schemes which may be similarly developed (d, e, f), without exhausting the combinations which the first net suggests.

Proceeding on these lines, the decorating mass of any design may be cut up into a series of frets which will fill every part of the given space. This makes it possible to devise designs of the type of Plate XXVI (a, c) which by virtue of their simplicity and structural character, are suitable decorations for models of wood or metal which requires mere suggestions in the way of ornament to enforce a border or enhance the

interest of a corner. Plate XXVI (b) shows a similar treatment of a triangular stamp.

In Article II several illustrations were offered of a book-rack end decorated by strap-like masses inclosing a panel. Applying the methods which have been illustrated, and using a net of three or four lines, it is a simple matter to devise the severe and conservative modifi-

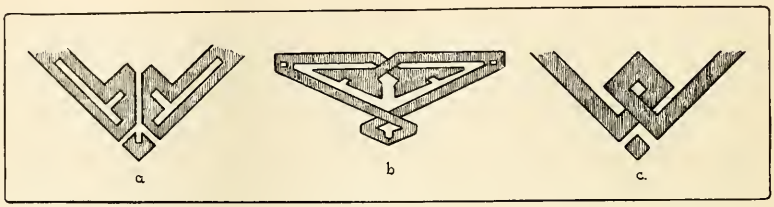


PLATE XXVI.

cations of the original mass, Plate XXVII (a, b), suitable for application to a model of the nature described. In (c) is shown a more elaborate arrangement in which the original design has been altered by widening the straps on the sides of the panel and then dividing them into forms remotely suggesting stems starting from growth points upon the lower element of the pattern.

SUMMARY OF STEPS.

Summarizing the steps in the development of the decorative element, they may be said to include: First, the indication of movements which suggest pleasing spaces structurally well related; second, the refinement of the lines and elements so devised until the rhythms between the parts are perfected; and third, the separation of the elements one from another leaving them either as abstract forms or as spaces to be filled later with conventionalized matter. In Plate XXVIII these steps are shown in the decoration of a panel planned as a basis upon which floral elements are to be introduced. Fig. (a) shows the mass, (b) the net and (c) the lines of the net doubled and the forms which are to be developed into flowers and leaves shadowing forth their nature and growth.

Emphasis is to be placed upon the necessity in practice, of making the separation of the elements in the original mass, a very small one. In some cases no separation at all is necessary, merely the division of the mass by lines into agreeable spaces for various conventional forms. When the separation is effected it must not proceed to the extent of al-

lowing the space between the new elements to play its part as a mass, or the design will have a loose and scattered appearance.

OVER-ELABORATION.

The student is particularly cautioned to keep before him the need of simplicity in this stage of his work. The principal center of interest must

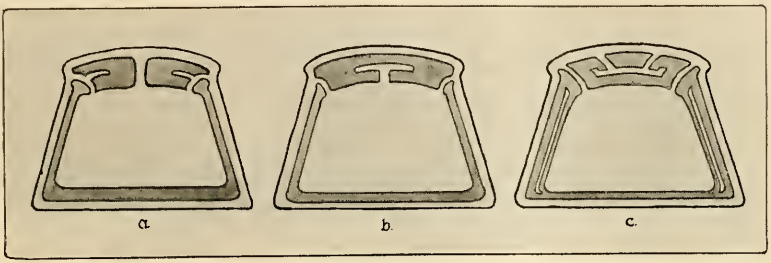


PLATE XXVII.

not have its value destroyed by the development of other centers of marked attractive power. Minor centers in number it may be necessary to include—indeed every growth point, whether of trunk, branch, or stem, forms such a center—but such lesser centers must be made subordinate to the main one.

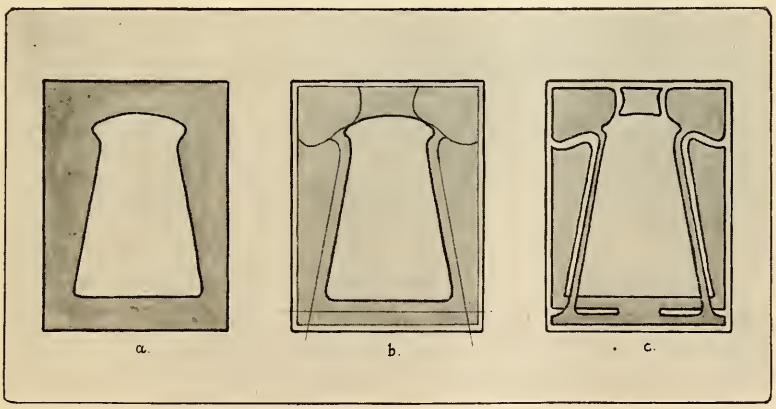


PLATE BXVIII.

For this reason also, there should not be several start or growth points to make themselves manifest by marked systems of radiating lines. "Explosive" centers confuse the eye and leave it uncertain which way to turn.

Over-emphatic rhythms are also to be avoided. Ordinarily, rhythm hastens movement and distracts the attention, while contrary motion arrests the gaze. Rhythm also assists structure while contrary motion opposes it, but a rhythm of many curves tends to exaggerate movement and produce an unpleasant whirling motion in the pattern.

THE DESIGNER'S DILEMNA.

In the development of subordinate elements care must be taken not to cut the original mass into too many small parts, for while multiplication of such forms adds to movement and to interest, it serves to weaken structure and to confuse the gaze. Strength is needed in every design, as is simplicity and interest, but over-emphasis of supporting elements will cause rigidity, while simplicity may be carried to the point of barrenness,a nd interest lost through the lack of movement and ingenious rhythm. In the solution of every problem the designer must meet and reconcile as best he may these antagonistic elements; it must be his to seek the mean between strength, simplicity and emptiness, and weakness, complexity and interest.

FIG. 4, POOR MASS DIVISION.

UNITY AND HARMONY.

If, in examining his design after having developed the masses, the student finds it lacking in rhythm and structure because of the presence of too many small and "busy" forms with attendant contrary motions, (see Fig. 4) he may be able to effect correction without redeveloping the entire pattern by uniting two or three of the separate elements into a single mass. In so doing he should seek "unity"—the development of a principal form with accessory forms which lead the eye to that part of the design which the designer wishes to be the chief center of interest.

Unity is also dependent upon adherence to a similar character of line and a similar character of form throughout the design. This injunction is not to be construed to mean that all lines must be similar in curvature or that all masses must be similar in shape. Unity does not mean uniformity, for uniformity quickly leads to monotony. Rather, the rule indicates that a design which has for its dominating movement and for its principal form, a line and shape of certain character, shall not in its subordinate elements show lines and shapes of an entirely different nature.

This introduction of mixed movements or motifs is far from uncommon even in the work of designers of some experience. Fig. 5 shows a

flagrant example of it, containing above geometric elements, growing from serrated leaf forms which in turn rise from stems and rootlets marked by the characteristic curves of l'Art Nouveau.

The beginner is most apt to err in this direction in his effort to secure variety in his pattern, but he should remember that his aim must be to secure a variety which shall be in the language of designers "consistent". A design which transgresses this rule is said to lack in "keeping"—it does not "hold together". Keeping or consistency is one of the chief factors making for unity.

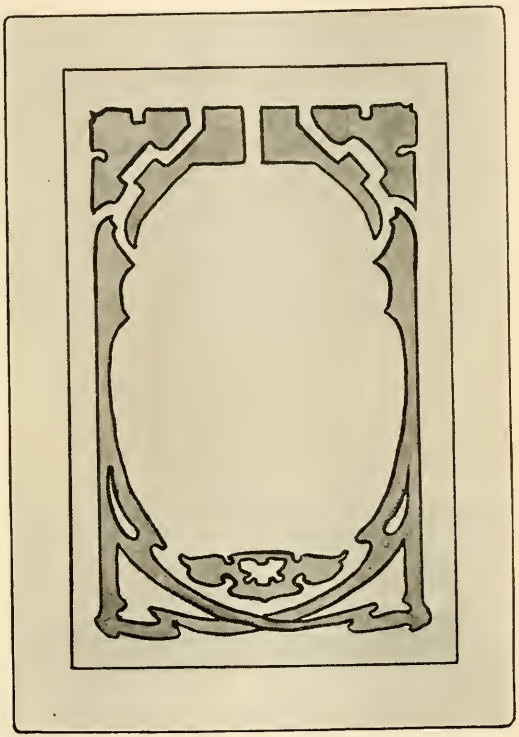


FIG. 5. MIXTURE OF LINES AND FORMS.

Finally it may be said that the decoration as a whole should be harmonious. Harmony may be defined as that quality in design resulting from the relation of well proportioned and balanced parts. In the harmonious design the eye recognizes the equilibrium established by the different interests and approves the movement of the related rhythms. As a general rule it may be said that that design is most harmonious which has in it the largest number of factors making for unity.

EMOTION AS AN ELEMENT IN DESIGN.

For preliminary practice in the evolution of decorating masses, it is suggested that the learner solve problems similar to that offered in the square corner, Plate XXV, using at first only straight lines. Later he should essay problems like those offered in Plate XXVI, and then develop a variety of such simple masses, using combinations of straight and curved lines.

Previous to his practice it will be of advantage to the student to review the principles laid down (Article I) on the subject of Line, that the lines of his nets may be made with careful consideration of the rhythms of the masses they condition.

FIG. 6. BORDER OF MAPLE KEYS AFTER DESIGN BY MUCHA.

Each line used has the power to convey emotion. Lightness may be suggested by graceful and slender elements, somberness by large and heavy ones; dignity may be emphasized by those which have a forceful yet conservative movement, and sprightliness by those which show quick

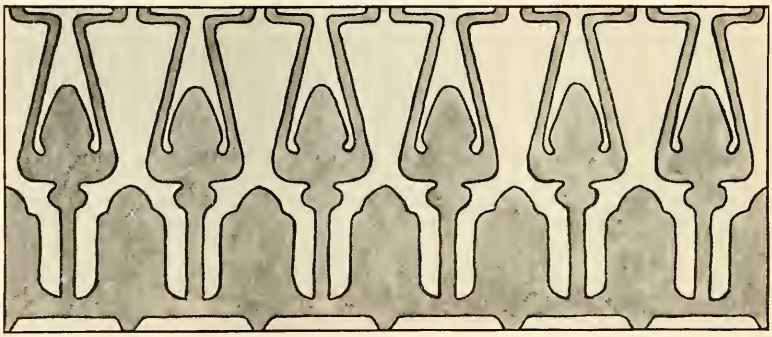


FIG. 7. DESIGN AFTER DETAIL BY MUCHA.

turns and many changes of direction. The designer has it in his power to suit the character of his design to the nature of the subject; he can make it light or serious, quick-moving or slow, plain or ornate. Upon his skill and taste will depend the ingenuity of his arrangements and the saving grace which shall prevent them from falling into the category of the common-place.

IMAGINATION AND STYLE.

Much emphasis is to be placed upon the imaginative quality which the designer has it to show in his work. Every decoration planned should be considered from what may be termed its emotional side, that there may be given to that particular design the character which fits it to its purpose. An active imagination and the power to use it in devising facile lines, beautiful combinations of spaces, and ingenious application of tones and conventional forms, lead to that which is known in design as a distinguished "style."

FIG. 8.

Style in design represents the personality of the designer. In his work he cannot but develop it whether he will or no. Style is but the expression of his own individuality, the reflection of his own ideas. The more he is acquainted with the work of the best designers, the greater the range of the possibilities of design which open to him, and the greater the mass of material which is his to use in the weaving of new conceits. Having grasped the significance of the process of mass elaboration and the manner in which this aids in determining the character of a design, he will be prepared to appreciate the work of professional designers (see Figs. 6, 7, 9 and 10) who have used this process in the development of patterns made up of abstract forms or mass arrangements divided and filled with conventional elements or "subject matter."

In seeking to familiarize himself with the work of each of the masters of design the student should not only scrutinize their patterns to see their general adherence to the laws of structure and rhythm, balance and interest, unity and fitness, but should also look to see in just what manner each has presented these principles, what each has done to refine line and space and express feeling and imagination—what, in other words, makes up the personal quality in his work, its style.

As he proceeds in this examination the learner should seek to enrich his vocabulary of design by storing his mind with details of form, methods of procedure and images of beautiful patterns. He should study and mem-

orize these as a speaker memorizes phrases, as a mathematician memorizes formulae. Upon such a mental exchequer he will later have to draw if he would evolve new and interesting combinations in the development of what shall be for himself a style both vigorous and graceful.

PRACTICAL PROBLEMS.

In the light of the suggestions which have been given, the learner should now essay to develop some simple decorative masses into well re-

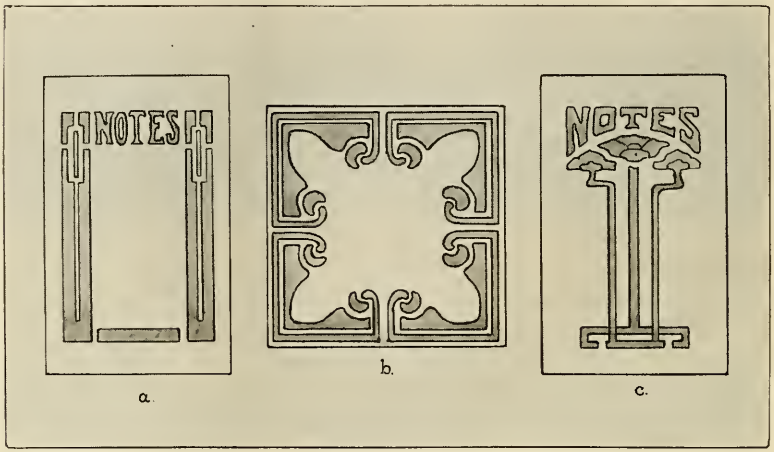


PLATE XXIX.

lated elements. Some of the triangular stamps already planned should be elaborated (see Article II, Plate XVI). After these have been divided and made to assume attractive rhythms, more complex masses which have been planned as space arrangements (see Article II, Plates XVIII, XX, XXI) should be carried to completion. With these problems solved the student will be prepared to lay out and carry to successful issue a large variety of practical designs—simple borders (Figs. 7 and 8), tail pieces, book covers and cushion covers, Plate XXIX (a, b, c), envelope holders, etc., (Plate XXX), for which designs of abstract spots are adequate.

SCALE.

The worker is cautioned not to make his drawings on too small a scale. As practice exercises they should be of good size that in the development of the elements which compose them, he may have lines

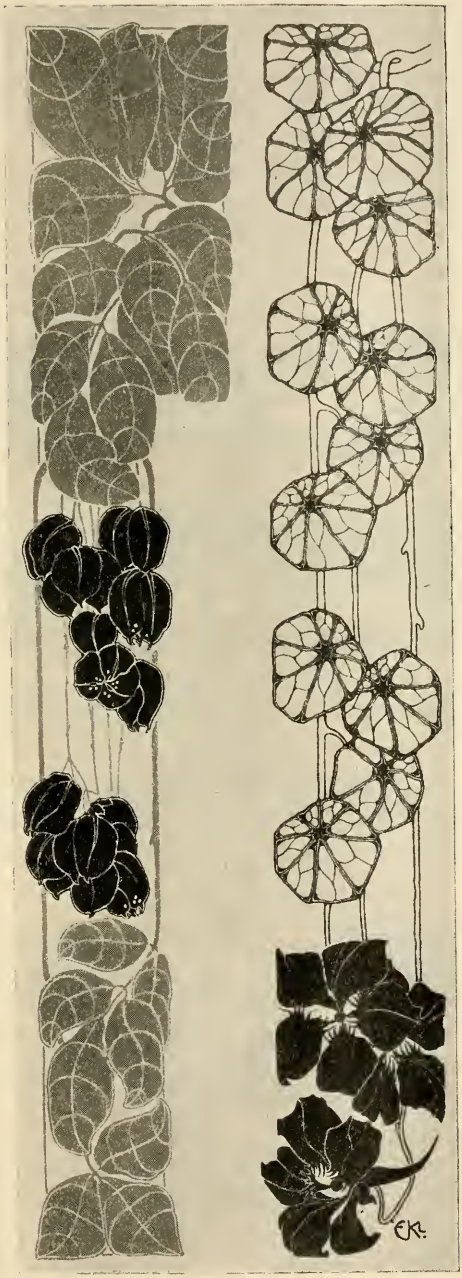


FIG. 9. DESIGN BY E. KLEINHEMPLE.

FIG. 10. DESIGN BY E. KLEINHEMPLE.

over which his hand can freely sweep. This will conduce to better drawing and lessen the chance of making the minor forms niggling in character. Additional caution is given not to destroy the structural character of patterns which are based on panels, by cutting up the straps which parallel the edges and connect the corners. These bands or borders may, when designed for richly decorated forms, be divided into separate units (Fig. 7), or elements of a weaving character (Fig. 8). In patterns planned for models in wood and metal, and indeed for any forms in

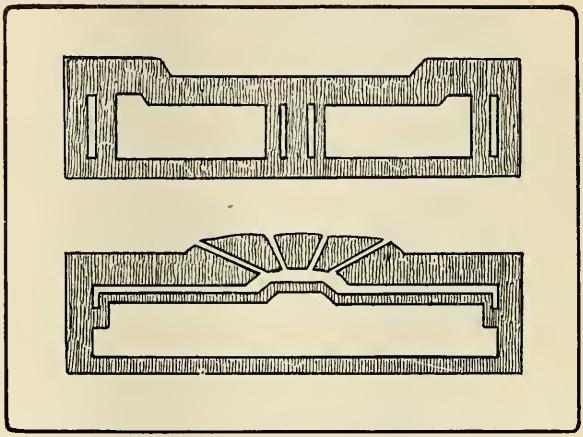


PLATE XXX.

which structure is to be emphasized, they must be kept extremely simple and resolved merely into stem forms, plain or interlaced, the ends of which may serve as growth points for more highly decorative elements.

STUDY OF SPACE DIVISION.

With his eyes opened to the steps by which the most complex designs are to be developed from basal masses, the student should now make a careful study of patterns which show the manner in which the practical designer secures dignity through the planning of large and solid masses which he proceeds skillfully to break into subordinate elements so planned that they can be translated by very small changes of outline into leaf and flower forms. (Figs. 9 and 10).

The learner will come to realize through this study that the steps through which he has passed have given him a new point of view toward all design—one which leads him to consider all decoration from its structural side, which leads him instinctively to search out the masses

of every pattern he examines and causes him as by second nature to plan in mass, the moment a problem in decoration is given him for solution.

He will understand, of course, that the practical designer does not undertake formal steps in the way of developing masses and picking them apart into clean-cut elements before introducing conventional forms. None the less he has such masses and elements constantly in mind. As has been said, the skilled designer thinks in masses, in rhythms and tones, and with the first stroke or two of his pencil, resolves the shape before him into areas which his mental eye instantly fills with suggestive forms and causes to take on color. Following outlines hidden from all eyes but his own, the skilled worker will proceed, often with surprising rapidity, to indicate the details of his pattern. It must not be supposed that because he works rapidly he works without plan. Below the tangle of hurrying lines, his eye sees imaged forth with increasing clearness those spaces of his design which he will preserve and those which will fade again into what may be termed the pattern of the background.

Facility to proceed thus will come in time to the beginner. It should be his constant endeavour to think his pattern out before he seeks to give it form. In his desire to shorten the road which shall carry him to the point where he may be able quickly to weave into pattern, flower and leaf, bud and swaying grass, he must not be betrayed into forsaking the safe path which through repeated and formal solution of elemental examples will give him that knowledge and surety which will enable him to use with profit the free and apparently careless line of the practiced hand.

(*To be continued.*)

INDUSTRIAL TRAINING IN PUBLIC EVENING SCHOOLS.[1]

CHARLES F. WARNER.

PROBABLY no country in the world has done more than our own to advance the cause of manual training as a feature of general education. Manual training has entered into and modified the whole field of school work from the kindergarten to the college. The more strictly educational phase of it is naturally found in the elementary schools. In the secondary schools, while the educational side is by no means lost sight of, the distinctly practical element is properly emphasized to a certain extent. This grade of manual-training school work is distinctly American. Manual training or technical high schools as we know them are not found abroad. In France and Germany, for example, manual training as such is found almost entirely in the elementary schools. There is extensive practical education besides this, but it is found in trades schools in which the youth of both sexes are trained for special industries. In Germany the system is thoroughly scientific and there is no confusion of thought about the purposes of the several kinds of schools. But the manual-training high schools with all their problems, their splendid achievements, and their promising future are distinctly American. They are in no sense trades schools and yet they owe their existence in part to the popular demand for a more practical kind of secondary education than which was furnished by all the high schools of ten or fifteen years ago and by many of the present day. Nor is it probable that our manual-training high schools will ever be converted into trades schools, because the American people as a rule, though intensely practical and conscious of the demands of an industrial and scientific age, wish their children to have a broad training, with as much of culture as possible, at the same time that they acquire a knowledge of fundamental scientific principles and some appreciation of industrial methods. With this end in view they have already built and equipped a considerable number of manual-training high schools, and they will probably go on building and equipping them. But these schools are costly and they will be required to give the greatest possible return on the investment. It is a fair ques-

[1]Paper read before Manual Training Department of N. E. A. at Asbury Park, July 4, 1905.

tion to ask whether these expensive equipments in buildings, apparatus, and teaching force cannot be made to yield good returns along the line of strictly vocational training or trades teaching as well as in the way of general education.

That there is a demand for the teaching of the mechanical trades there can be no doubt. The question has been discussed for several years past in the meetings of this department and need not be enlarged upon here. Manufacturing interests are constantly impressing upon educational authorities throughout the country the fact that our mechanical industries and our commerce are suffering from the lack of trades schools. Our great wealth of natural resources, the importation of skilled laborers from abroad, and artificial trade conditions have thus far succeeded in keeping this need in the background; but the need is real and it already has begun to assert itself. It could not be otherwise. Census reports show us that one-fourth of the whole number of people engaged in wage-earning occupations in the United States are employed in those industries which are based upon the mechanical trades. From the same reports we also learn that the value of the products of our mechanical industries is more than half of the total average value of all our products. It follows as a matter of course that in certain so-called manufacturing centers a much larger proportion than one-fourth of the people are employed in shops and factories, and the relative value of the manufactured products rises to a still higher figure. Once an agricultural nation, we have become a nation of manufacturers. Brought about as the change has been by exploiting great natural resources without much regard to economy and by shutting off foreign competition by means of a protective tariff, we have neglected to make provision for the proper training of the great army of artisans necessary to maintain our position in the front rank among manufacturing nations. The German representatives at the St. Louis Exposition, in their reports which were widely circulated in the foreign press on their return, said that German manufacturers had nothing to fear from American competition because our methods of production are wasteful, we have no skilled artisans to speak of and we have no means of producing them. For the Germans there is no American peril.

When we compare our almost total lack of distinct training for the trades with the extensive and scientific trade school system of Germany we wonder how we have accomplished so much as we have industrially, and we can but feel the ultimate folly of neglecting to provide better industrial training in the future. Such trained workers as we have had—

and we have always had a few—survived the revolutionary conditions which destroyed the older industrial methods of their generation, including, for the most part, the apprenticeships. But even these men must soon pass off the stage and give place to a new generation of workers less fortunate in their training than their predecessors. Meantime the need for special training has greatly increased. Modern methods of intensified production, the manufacture of interchangeable parts, the complicated processes to be followed, the highly specialized machines to be kept in repair and operated efficiently—machines that do everything but think and seem even to do that—all these demand a controlling hand which shall have at command accuracy and skill and knowledge of a higher order than was necessary in the less specialized trades of the past. The rising generation must be trained to meet this demand if our manufacturing communities are to hold their own in the competition of the world's markets. In his inaugural message the present governor of Massachusetts called attention to the Commonwealth's need of trade schools, and the legislature has responded by authorizing the appointment of an industrial educational commission. That commission has been appointed and will soon begin its work.

The wisdom of laying the best possible educational foundations for industrial development, already abundantly proved by the example of Germany, is generally admitted by those who have given the question any thought. It means economic advantage and social progress. Why, then, are we as a people so slow to act in this matter? Here and there throughout the country foreseeing philanthropists have created funds for the promotion of industrial education, but, speaking in a general way, very little has as yet been accomplished in this line. There are not more than a half dozen schools—hardly that, I think,—that are worthy to be called trades schools, although there are several endowments to be invested in such schools in the near future. It is surprising that more has not been done for trade education either through private endowments or at the public expense. Those who should most fully appreciate the economic value of trades schools seem often to doubt the immediate necessity for them. Our industries have prospered without them and we still seem to be getting our work done after a fashion. Our industrial leaders are more inclined to make the most of present opportunities of profit to themselves than to protect the future interests of any industry or any class of workmen. Even the workmen themselves are too well satisfied with their own limited knowledge and skill. Low standards of industrial efficiency, a quick market for comparatively unskilled labor, protection against

foreign competition and the exclusion of many manufactured articles requiring expert knowledge and refined skill, the assumed but by no means proved hostility of unions, together with our present commercial prosperity under conditions as they are, all combine to turn public attention away from the economic arguments for trades schools. And then there are the problems of organization which seem appalling to those who have given some attention to the question of establishing such schools. What among the almost countless processes of the trades are suited to school methods of instruction? How many trades are to be taught? What, in fact, constitutes a trade in the modern sense of the term? It must be confessed that these are puzzling questions. But year by year the need for trade schools has become more and more apparent. Foreseeing men of public spirit recognize it. Not only the leaders but the rank and file of the industrial army, some of whom have experienced the benefits of such trade instruction as we have, are asking for it. The well-equipped manual-training schools throughout the country suggest a natural connection between occupational training and the work of the schools, and they constantly call attention to the propriety of making trades teaching a part of the educational system of every industrial community. Perhaps these manual-training schools, through their own suggestive influence as day high schools and more especially through their direct exemplification of the benefits of trade training as evening schools for those employed during the day in shops and factories, may be more instrumental than any other force in bringing about a general system of instruction in the mechanical trades.

For several years the city of Springfield has carried on an evening school of the mechanical trades, making use of the shops, equipment, and some of the teachers of the technical high school. It had a small beginning in 1898, with classes in machine shop practice and plumbing only. These classes were chosen because the principal demand in that city was thought to be for instruction in these trades. The school now has classes in machine shop practice, in plumbing, in pattern making and other woodwork, in machanical drawing, in shop mathematics, and in electricity. The courses laid out for these several departments are as thorough and complete as it is thought possible to make them in an evening school. The attendance upon this school is now over three hundred and is remarkably constant. The per cent of attendance is 84.4, which is far better than that in most night schools. It comes nearer to that of the regular day high school than it does to that of the average evening school.

The object of this school, as stated in a recent report of the school committee is "mainly to give men already employed in the trades, who know, therefore, at least a part of the trade in which they are employed, an opportunity to broaden their mechanical training and make themselves more efficient workmen. It is not the function of this school to train apprentices as such, but to supplement the imperfect and highly specialized training of modern shops by giving machine hands, helpers, and apprentices, so far as there are any apprentices, an opportunity to gain practice in a greater variety of work than would ever be open to any one man under the modern system of machine production. The aim of the school is to enable a machanic to acquire a wider range of practical knowledge and to improve the quality of his work, and thus reach a higher classification in his trade with increased wages. This is a great advantage to the individual workman; but it does not materially affect the condition of the labor market in general."

It is a public school. Tuition is free, but a fee of five dollars is charged which defrays the expense for materials used and serves as a guarantee of good faith on the part of those who enroll. The per capita expense was, in 1904, $15.21, allowance being made for the incidental fees. It is a popular school and the various city governments since its organization in 1898 have promptly voted the necessary though moderate appropriations for its maintenance. While its existence is due almost wholly to the fact that the equipment of the technical high school was easily available, it has returned to that school an equivalent, probably much more than an equivalent, in helping to attract public attention to the value of practical training for high school boys, in justifying the cost of thorough technical training and the expense of its development along modern lines, and in actually saving several hundred dollars annually through the value of the tools and machines made for use in the day school. It may not have been necessary thus to justify the maintenance of technical education in the city's high school system; but the influence of the evening trade school has certainly been helpful in this direction. In fact, both schools have felt the advantage of mutual support.

It may be said that such a school as I have described is, after all, not a trades school in the most complete sense of the term,—that it falls far short of answering the need for thorough and comprehensive industrial training for the youth of our country. It is a kind of shop continuation school. Its pupils are largely men already employed in the trades who wish to improve their knowledge of the trade they follow or perhaps fit themselves to take up a more profitable one. Its office is to supplement

and facilitate shop training and to enable mechanics to do a high grade of work. For this reason it receives the support of employers of labor, who welcome any means whereby their men may be trained to do a better quality of work. It appeals to the men themselves whose shop training has, for the most part, been limited to narrow lines, because it opens the door to a wider range of practice, to a broader knowledge of the trade, and consequently to promotion with higher wages. It is not opposed by labor unions because, while manifestly advantageous to individual workmen, it cannot, however much it may be extended, operate to increase the number of men employed in the trades taught and thus tend toward a reduction of wages. But while it may accomplish all this, is it to be considered an answer to the demand for systematic instruction in the trades?

It is probably not the final answer to this great need; but, in view of all the circumstances, it certainly offers a very practical though perhaps partial solution to the problem. What, in a word, are the conditions to be met? There are carpenters enough, but very few who can make a clean joint or lay a good floor. Advertise for a machinist, a tool maker, a plumber, and though a hundred may come where only one good workman is wanted, not one in a hundred will prove to be a good workman. All our industries are embarrassed by inefficiency and lack of skill among the workmen, not by a scarcity of workmen. What we most need is enlarged opportunities for training to be offered to those who are already employed in the narrow lines required by the specialized trades of the day. And this is the one thing that every manual-training school in the country within the limits of its equipment can offer and should be willing to offer. These schools should open all their shops, their laboratories, and their courses in science, mathematics, and mechanical drawing to those who have the greatest need for the instruction which these facilities are designed to give. To most of those engaged in industrial occupations, who have experienced the lack of opportunity in the modern shop, such instruction as the manual-training schools of the country could give would be a liberal education. To every earnest workman it means a certain degree of breadth in place of narrowness; it means increased power, greater self respect, greater value to himself and to those dependent upon him; it means that the young man who has been stationed for five years at the same machine and might otherwise remain there ten years longer is set free to range among a larger number of machines and become familiar with them all; it means the freedom that education always gives.

Let me give a few instances that have come under my observation in the Springfield Evening School of Trades. Two years ago a man twenty-six years of age, employed in a machine shop at $1.10 per day, entered our evening class in mechanical drawing. After a little more than one year he was recommended to the position of assistant foreman of the Densmore Typewriter Company and secured the place at $2.00 per day. He has been advanced rapidly and is now holding a very responsible position at $21.00 per week. He gives the school credit for making his success possible.

Another young man twenty-one years of age, who went to the school the same year, having had some experience as a subordinate in the drafting room, is now, as the result of evening-school training, in charge of the designing of tools and fixtures for a large automobile company at a salary of $25 per week.

It was only yesterday that a man came to my office bringing his son, who has just finished the grammar school course. As a foreman at the United States Armory he had known of a number of men who had been advanced because of their attendance at the evening school. He spoke of one whose rating had been nearly doubled after a brief course in our machine shop. School work beyond the elementary grades had hitherto seemed to him to have little practical value. He is no longer skeptical. He believes heartily in the evening school and he wishes his boy to take a full technical course in the day school.

It is not necessary to multiply examples of this kind. In its brief history of seven years the Evening School of Trades has numbered nearly eight hundred different men. I can recall no less than fifty instances of advancement due to the school that have come under my personal observation. One would expect improvement, of course; but the surprising thing about it is the degree of advancement secured by so many in so short a time as the result of work in this evening school in connection with the practical work at the trades during the day.

Compared with the varied and extensive trades-school system found abroad, industrial training in public evening schools may seem very incomplete; but such as it is or may be, let us make the most of it. It will at least be a clear gain to the cause of industrial education and a great advantage to those workers in the industries who are fortunate enough to be able to attend such schools.

A FEW THOUGHTS ON WOOD-CARVING.

MARY ROGERS.

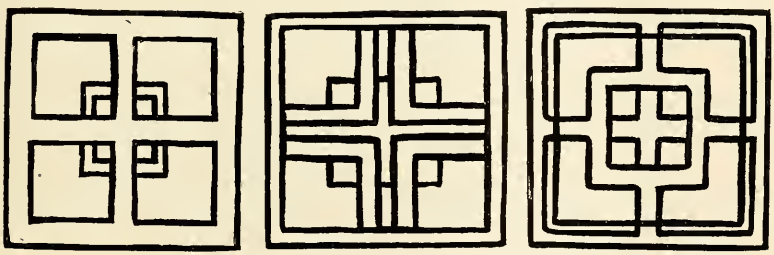
New York City Training School for Teachers.

Art is the free and adequate embodiment of an idea, in a form peculiarly appropriate to the idea itself.—HEGEL.

That thing which I understand by real Art is the expression by man of his pleasure in labour.—WILLIAM MORRIS.

WOOD-CARVING is a simple art and an old one, yet very little is being written about it. To-day as the searchlights are being turned on all the arts, wood-carving should receive attention, for in all probability it will outlive many of its sister arts in usefulness as an aid in developing expression, taste and skill of hand.

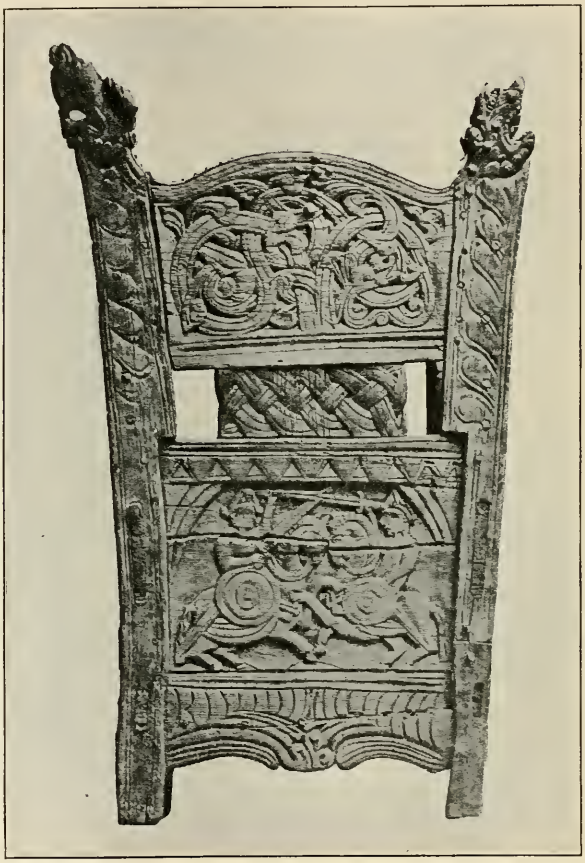
The aim of art is to express life (thought and emotion) in form and color. The aim of wood-carving is to express beauty in form. Beauty is the thought best expressed or in best form for the purpose. Just so far as carving falls short in this it has failed in its mission.



DESIGNS FOR LINE GROOVING.

The specific aim of wood-carving is to beautify by changing a plain surface into varied depths. In school the object containing these surfaces to be beautified should be suggested by the immediate needs of the worker and be designed and constructed by him, thereby exercising his creative instincts. The worker himself should develop suitable decoration. This method places all work on the object in direct relation to life. One can find little to praise in the work of schools that require their students to carve published patterns on objects bought from some "art" store or crudely made by a down-town cabinet maker.

There are about as many different kinds of wood-carving as there are different nations, but some kinds are more suggestive to us than others. The Flemish is especially so because simple in construction and decoration. A definite purpose is evident and the result such as



NORSE CHAIR.[1]

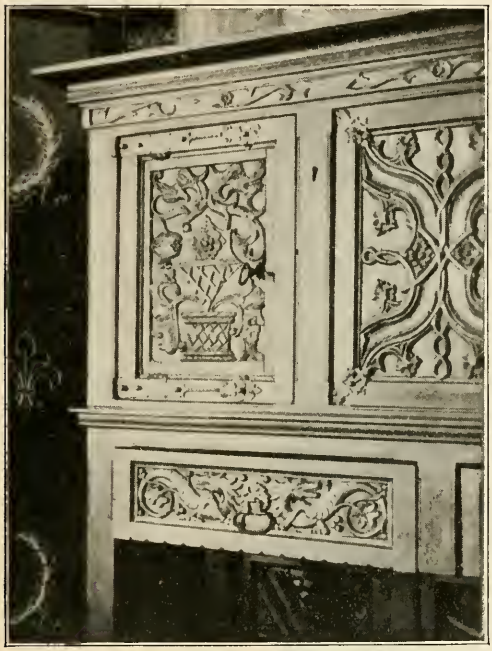
should be expected only from thorough sympathy and unity between idea and material—worker and tools, or an equilibrium between theory and practice.

It is evident, then, that carving is cutting away material in such wise as to leave forms which represent a pre-conceived idea. As a specific

[1] From the International Studio, by courtesy of John Lane, publisher.

kind of carving, line-grooving is the simplest, there being less technique to think of in first holding the tool. Linesat first should be long enough to give freedom, swing—body movement instead of finger movement. Lines may be continuous or broken, singly or in groups, straight or curved, or both, according to the surface on which they are placed.

Discriminating judgment and a knowledge of design are the necessary companions of the skillful hand, both from the material and educational standpoint. All carving should aim more at relation of part to part and part to whole than at technique. Design, then, becomes of fundamental importance in wood-carving.



FLEMISH CABINET.

A second kind of carving is the result of lowering surfaces — slightly lowering the background of a design, leaving bands, or simple conventional-ionized forms, flowers, etc., and modeling these by lacing parts. The Norse chair is a good illustration. This type of carving is appropriate for furniture decoration and hence is suitable for school instruction.

The relief carving is but an elaboration of this type. The line of development is direct from one to many depths, and from simple lacing of bands or parts to many twists and turns. For proper or legitimate decoration wood-carving must be—

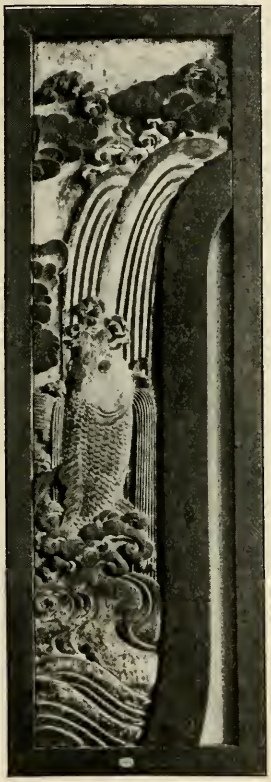
(1) In accord with function. For instance, seats of chairs and tops of stools should not be carved.

(2) It must possess fitness to purpose. Minute details should not be put on any object of use on or near the floor. Very delicate work should be put only on small or delicate objects.

(3) It must be natural to the material. Petals of flowers should not be cut in relief so as to break easily.

(4) It must be subordinate to construction. For example, a box when open should be as complete in design and form as when closed. The opening should not break the unity.

As a last suggestion: The arts of all times and countries have not only been developed from or with material natural to the country but in relation to the limitations of that material. America is rich in kinds and quantity of wood. We can make an art of our own, using this material, ever keeping before us and profiting by Goethe's motive, "It is by working within limits that the artist reveals himself".



JAPANESE PANEL.

EDITORIAL.

Why do We Teach Drawing?

The simple question as to why we teach drawing would seem to admit little but the answer that we teach it that pupils may learn to draw. Such answer, however, seems somewhat foreign to the minds of certain of our drawing teachers. At the meetings of the Art Associations one hears not a little discussion of the aims and purpose of drawing, but with singular unanimity the speakers avoid consideration of the rather obvious reason suggested above.

Such avoidance is a sign of the times and a symptom of an ailment not local. When drawing was first introduced into the school curriculum it was because of its value as an agent in training pupils to precision and skill of hand, to quick and certain judgment of eye. The argument urged was utilitarian and emphasized the value of the subject in any one of a hundred different arts and trades in which the learner might later find himself. The early teachers of drawing made strenuous efforts to cause their pupils to draw with exactness. Faithful to the scholastic ideals of their age they presented a formal sequence of steps and taught much from the flat and from geometric solids. Their teaching was dry, but their aim was definite.

With a new generation of teachers other ideals have risen. These instructors come to their work affected by the atmosphere of the studio. Most of them have studied for years with those who have talked little if at all of children and their teaching, but much of pictures and picture-making. To the instructor fledged in such a school the limited province of the old-time drawing teacher seems a Utica close pent. Inexperienced in the handling of a single talent, he does not hesitate to exploit many, and seeks to lay claim to the whole broad field of art. With some drawing teachers it has become rather the fashion to sneer at careful drawing. The systematic if formal instruction of their predecessors has offered in its place teaching far more desultory in character. Attempt is now made to introduce the little children to the subtilities of color and space arrangement, and to lead them to an appreciation of art through much talk about it. The one-time lessons on object drawing have become exercises in composition or picture-making, offered to the pupil at an age when he is still unable to represent with any accuracy the simplest of familiar forms.

As might be expected the results of such teaching are seldom satisfactory. To pupils of the higher classes of the elementary schools the refinements of color and design are in a degree comprehensible, but the child before adolescence is immune to such instruction. Nature wisely protects him. Through dictation he may be induced to make designs which are artistic in their arrangement, but such artistry is a matter beyond his comprehension. The age for appreciation has not arrived, and it cannot be forced. Subtle color combinations and tone harmonies he will make at command, but when at liberty he 'reverts,' as the doctors say, and turns with joy to bright hues of red, blue and green, while the time he has spent in making pictorial compositions has left him helpless to say whether a simple book or bowl has been correctly drawn or no.

THAT the teaching of what goes to make for beauty in color and design is a good thing, no one will be prepared to deny, but because it is a good thing it does not follow that it should be presented to the child at every age. Before the pupil can sketch a simple group as an interesting composition he should know how to draw. This knowledge he cannot get without good teaching and much practice. Such teaching need not be done from bald and uninteresting models, but it is necessary that its emphasis be placed upon those things which shall lead the child to make careful and accurate comparisons and cause him to look in his drawing for good proportions and construction.

The old industrial argument, however, banned as utilitarian, has much in it of moment. The pupil who knows how to draw is owner of a valuable asset. What shall it profit him, if once out of school, he be possessed of some hazy knowledge of how to "compose as a picture" of various objects, yet be incapable of drawing any one of them quickly and accurately?

The teaching of drawing in many schools stands in need of sharp revision. The hazy ideals of many art teachers need recasting in simple and concrete form. In a definition of the duty of such instructors the teaching of good drawing, as such, should be given a prominent place. Though a beam be in our neighbor's eye, yet it may not prevent him from seeing the mote within our own. Not without cause did our cousins across seas, after they had examined the work of the American schools at Berne last summer, express the judgment that what our art system needs is better teaching of drawing. —*H.*

A New Principle The new program of studies recently adopted by the faculty of Columbia College enunciates a "new principle" which is worthy of notice. Paragraph 6 in the published statement is as follows:

"A new principle is introduced into the program by the provision which gives increased credit for high standing in a course and which attaches a penalty for low standing. The student who obtains the mark A (Excellent) in any two courses in one-half year will be entitled to receive one point of extra credit, provided he has not fallen below the mark B (Good) in any of the courses pursued by him during the half year. A student who receives the mark D (Poor) in two or more courses in any half year is to be given credit for but one of these courses."

This "new principle" would seem to be merely the application to school work of the very old one with which we are all familiar: "For unto every one that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away even that which he hath". We used to think this "an hard saying", but have come to see that it is a law of social progress and to recognize its justice. Perhaps teachers have too often ignored this law. Be that as it may, every live teacher will recognize that the recent action at Columbia is intended to meet a difficulty that has often arisen in his own experience. Moreover, he will hail it as another step toward the more general recognition of power to accomplish as the proper basis for school or university credit. —*B.*

A well understood failure is of more value than a blindly achieved success.

Under the forceful presidency of Dr. William H. Maxwell, the National Educational Association saw at Asbury Park one of its largest and most successful meetings. To those interested in watching the development of educational thought in this country there was much that was significant in the prominent place given to the arts upon the general program, and in the outspoken advocacy of the one-time "specialties" in the general resolutions adopted at the meeting's close. A double decade since such would not have been possible; now both addresses and resolutions are a source of congratulation, but scarcely of surprise.

The isolation of the special subjects ceases the moment the aims of the arts and the general curriculum are one.

ASSOCIATIONS.

MEETING OF THE NATIONAL EDUCATIONAL ASSOCIATION.

Dr. William H. Maxwell has for many years made plain his hearty advocacy of the manual arts in education. Under such circumstances, friends of the arts looked forward with unusual interest to the meeting of the National Educational Association at Asbury Park under Dr. Maxwell's presidency. Whatever the pleasant anticipations may have been, they were surely not disappointed in the programs presented both in the general and section meetings. From the opening of the session to the last hour of the last meeting, when the committee on resolutions asseverated the belief of the association at large in manual branches, the program was filled with addresses on all phases of hand training. One complete session of the general organization was given to a discussion of the arts, by leading representatives of the scholastic, engineering and commercial world, and an unusual opportunity was afforded to hear from practical men of affairs, the arguments in favor of manual-training and trade schools.

Dr. Maxwell, in his very striking address as president, called particular attention to the causes of the reaction experienced by the forces of "new education." These tendencies he noted as chiefly rising from three sources: *First:* From the contentions of selfish politicians, who see that it costs more money to teach the new subjects than the old, and who begrudge the public the public revenue thus diverted from the field of political spoils. *Second:* From the conservative element among the teachers themselves, who have been accustomed to mass work, both in learning and teaching, and who chafe at the introduction of subjects into the schoolroom which place their great emphasis on individuality, and demand attention to the individual pupil; and, *Third:* To the vague feeling of disappointment on the part of more progressive teachers that nature study, correlation and the arts have not accomplished all that their enthusiastic advocates promised on their introduction.

Dr. Maxwell pointed out the other difficulties in the way of the development of the modern curriculum. "Merely denominating the special subjects 'fads and frills,'" he said, "would never stay their development. The politicians and malcontents invented these terms. It must be theirs to learn that it will require something more than a stupid alliteration to stem the tide of the irresistible forces that are making the modern school the faithful counterpart of the modern world, and an adequate preparation for its activities."

GENERAL SESSION OF THE ASSOCIATION DEVOTED TO THE DISCUSSION OF MANUAL AND TECHNICAL TRAINING.

At the general session of the association, held on Thursday evening, July 6th Dr. Lorenzo D. Harvey, Superintendent of Schools of Menomonie, Wis., spoke on manual training in the grades.

Mr. Harvey's address presented at length the reasons for teaching manual training in the elementary school, and urged that the course in manual training should have a content of its own wrought out and determined by the capacities and needs

of the individuals to be trained. The speaker deprecated the effort to develop the manual arts on the culture-epoch plan, and urged that the child be given training through the utilization of the elements in his immediate environment. "We have been making a mistake," he said, "in assuming that the child can be taken from home, where its activities before entering school have been concerned chiefly with things, and that during the school period each day we may entirely change the form of its activities and invoke those that come from the use of books."

The succeeding speaker, William Barclay Parsons, former chief engineer of the New York City Rapid Transit Commission, spoke on the practical utility of manual and technical training. His address was a plea for what he termed "the effective life." He pointed out the absolute necessity of training the artisan to mechanical skill, adding: "It is not an exaggeration to say that machine and tool work form so large a part of the daily vocation of the majority of all working classes in this country that there is not a single walk in life where the worker is not called on to show some familiarity with tools, and where some efficiency in mechanical dexterity will not lead to his advancement."

Mr. Parsons was succeeded by Frank A. Vanderlip, vice-president of the National City Bank, New York City, who spoke on the economic importance of trade schools. Mr. Vanderslip paid a high tribute to the German scheme of industrial education, and to the German schoolmaster. "The schoolmaster," he said, "is the cornerstone of Germany's remarkable commercial and industrial schools. The establishment of trade schools," he urged, "does not mean the commercializing of our educational system. An auxiliary system of such schools should be available for the youth after he has left the direct influence of the elementary schools. Truly, it needs little training in the economics of industry to comprehend what an unreconable advantage it would be if a substantial proportion of our 7,500,000 youths were to be brought within the influence of a new and entirely practical system of education designed to make each youth a more efficient, economic unit."

ART AND MANUAL TRAINING SECTION MEETINGS.

The manual training section held one session as a unit, another jointly with the department of secondary education, and a third jointly with the department of art education. The art section held beside a single session on the morning of July 5th, at which there was an interesting round table under the leadership of Mr. Henry Turner Bailey.

At the first session of the manual training section the president, Arthur H. Chamberlain, spoke briefly on some of the problems that perplex teachers of the arts. He was followed by Dr. Frank M. McMurray, who promoted active discussion on the subject of "How Class Teachers are to be Educated to the Value of Manual Work."

As a basis for the discussion, Mr. McMurray submitted, in printed form, five theses, each of which he proceeded to develop.

The first of these occasioned sharp discussion. It read as follows: "Probably the most pressing need in establishing manual training more firmly is fuller evidence that the subject contains a depth of thought comparable in richness to that in literature, history, geography or nature study." This idea the speaker expanded into a plea that the manual arts be developed as a subject with a separate content of its own. He compared engineering in the university with manual training in the

schools, and criticised severely the average form of manual training recitation, in which the tool-work played too much part and the recitation too little. Dr. McMurray's position was attacked by several speakers who objected to the proposition to introduce, as he was understood, a new subject into the curriculum, "a study of industries." It was urged that his plan would lead to manual work itself taking a very secondary place in such a course of instruction, while its teachers became lecturers on industrial propositions, and questioners on lessons to be learned from books. As a well known advocate of correlation, Dr. McMurray's reluctance to commend the correlation of the arts with other school activities, occasioned surprise. The discussion of this paper was quite the most active indulged in at any of the meetings of the manual training section.

Dr. McMurray was succeeded by Charles F. Warner, principal of the Technical High School, Springfield, Mass. Mr. Warner read a timely paper on industrial training in the public evening schools.

At the joint session of the manual training and secondary education departments, held on July 5th, Charles H. Keyes, supervisor of schools, south district, Hartford, Conn., spoke on the desirability of organizing special manual training high schools in towns which could not afford to introduce expensive manual training equipments into each of three or four different high schools. Mr. Keyes' position was attacked by Dr. Goodwin and others, who advocated the scheme presented last year by Dr. Gilbert at St. Louis, and urged the introduction of some form of manual training equipment into all high schools.

Dr. Katherine E. Dopp, of the extension division, University of Chicago, then spoke on the "Forms and Limitations of Hand Work for Girls in High Schools."

SESSIONS OF THE ART SECTION.

On Wednesday morning, July 5th, the art section was opened by the reading of the president's address by Frank H. Collins, vice-president of the section. Mrs. Matilda E. Riley, president of the section, was absent through illness.

The first general paper of the program was by Dr. F. Louis Soldan, Superintendent of Schools, St. Louis, Mo. Dr. Soldan spoke on the "Educational Aspects of Art Instruction," and made a strong plea for drawing as an essential in elementary education. He was succeeded by Charles M. Carter, art director of the schools of Denver, Col., who read a paper on "The Lessons to be Drawn from the International Drawing Teachers' Congress at Berne". Among his points the speaker noted the following: 1. Drawing should be placed en rapport with other teaching. 2. Memory drawing should be more fully cultivated. 3. The drawing of the public schools should have a definite connection with work in colleges and universities. 4. Drawing teachers should be allowed time for personal art work. 5. Special art instruction with direct reference to industries should be developed. 6. In the United States more attention should be given to accurate drawing.

The round table conference on "The Aims of Drawing as a Subject of Public School Instruction" was participated in by Emma E. Church of the Academy of Fine Arts, Chicago; James Hall of the Ethical Culture School, New York City; and Frank H. Collins of the public schools of the boroughs of Queens and Richmond, New York City. Miss Church spoke of the work in the primary grades and made a special plea for the use of responsive mediums like charcoal and water color that the little child might be called upon to make small physical effort. She depre-

cated the over-direction of primary work by teachers and urged that the natural expression of the child be secured, and his work left truly childish.

Mr. Hall, speaking of drawing in grammar grades, particularly recommended the cultivation of a sense of beauty. He laid much emphasis on the art side of drawing, but deprecated the effort to force what he termed "unnatural unions of art and manual training". Mr. Collins, speaking of drawing in high schools, also emphasized the art side rather to the exclusion of the technical side. "Instruction in drawing," said he, "should be linked to a higher purpose than merely a mechanical development. Correlate it ever so well with the other branches in the course of study; make it, as far as it is possible to do so, a co-ordinate part of as highly scientific a scheme of instruction as you will, but I beg that it be not forgotten that this study, with music and literature, are the only links which connect public school education with that part of our existence which transcends mortality".

On the afternoon of Thursday, July 6th, the joint session of the art and manual training section was opened by a brief paper by Robert A. Kissack, instructor in manual training, Yetman High School, St. Louis, Mo. Mr. Kissack reviewed the drawing and constructive work of the public schools shown at the St. Louis Exposition, and outlined the course now being developed in the Yetman High School. In illustration of his remarks he exhibited a number of pieces of woodwork to which patterns had been applied and subsequently carved.

Professor Charles R. Richards was to have spoken on "Lessons in Industrial Art Drawn from the Crafts of the Orient". In his absence the meeting was closed by a paper on "The Teaching of Applied Design", by Dr. James P. Haney, director of drawing and manual training, New York City, boroughs of Manhattan and The Bronx. Dr. Haney stated as four essentials to successful classroom teaching—the careful choice of problems to which designs may be applied with propriety; the specific definition and limitation of each problem for the pupils; its adequate illustration by good examples, and its careful development through successive steps which make possible the teacher's control of each stage of execution.

The speaker demonstrated the method of developing different designs, using charts which showed the successive steps he had named. As an illustration of the results which might be secured by class teachers, he exhibited an extensive collection of designs done in the classrooms of the New York City schools. This exhibition comprised several hundred constructed forms. and showed to a marked degree the skill with which different class teachers had guided their pupils and secured from them designs for a great variety of purposes. All of the patterns had been applied and treated in harmonious color schemes.

No account of the general meetings of the Association should neglect to include a reference to the striking report of the committee on resolutions read at the general sessions just before the final adjournment. It is not possible here to quote the entire set of resolutions, but the following paragraphs will indicate to friends of the arts how far these subjects have won the support of our foremost educators.

"The Association heartily approves of the efforts now being made to determine the proper place of industrial education in the public schools. We believe that the time is rapidly approaching when industrial education should be introduced into all schools, and should be made to harmonize with the occupations of the community. These courses when introduced should include instruction in agriculture as well as manual training, etc. Wherever the conditions justify their establishment, schools

that show the application of the branches of knowledge to practical life should be established.

"The N. E. A. regrets the revival in some quarters of the idea that the common school is a place for teaching nothing but reading, spelling, writing and ciphering, and take this occasion to declare that the ultimate object of popular education is to teach the children how to live righteously, healthily and happily, and that to accomplish this object it is essential that every school inculcate the love of truth, justice, purity and beauty through the study of biography, history, ethics, natural history, music, drawing and manual arts." —*H.*

EASTERN MANUAL TRAINING ASSOCIATION.

The twelfth annual convention of the Eastern Manual Training Association was opened by President C. B. Connelley at the Public Library, Newark, N. J., June 30th, 1905.

In the absence of Mr. J. L. Hays, president of the State Board of Education, who had been scheduled as the first speaker, the address of welcome was given by Dr. Addison B. Poland, Superintendent of Schools, Newark, N. J. Dr. Poland believed New Jersey to be the only state in the Union in which manual training is subsidized by the state treasury. When Ichabod Washburn and others in 1866, made a gift of $100,000 to build a shop in Worcester, Mass., people said, "how foolish, to think of teaching the mechanic arts in a public institution". Since those days manual training has received an enormous impetus. "It is only a question of a year or two", said the speaker, "when all our schools and classes in this city will have a co-ordinated course in manual training."

THE PLACE AND POLICY OF THE MANUAL-TRAINING HIGH SCHOOL

was discussed by Prof. A. H. Chamberlain of Throop Polytechnic Institute, Pasadena. A study of the curriculums of a number of high schools, including both the traditional type and the manual-training school, showed the difference in time given to the academic studies in the two groups. Mr. Chamberlain concluded this summary with the query, "Is it probable that students engaged in academic subjects for the lesser number of hours per week can cover as much ground in each subject as can their fellows in the regular schools"? That the manual-training school is not satisfactorily performing the work which should be expected of it would seem to be due to inadequate ideals, shallow work and an overcrowded curriculum. Subjects are isolated from each other and divorced from the demands of real life. What the manual-training high school should teach its students is thus summed up: "First, the lesson of responsibility; secondly, that of self-reliance and ability of leadership, and thirdly, the lesson of service and consideration for one's fellows".

Mr. Bates took occasion here to speak of the organization of the work at Tome Institute, where the teachers in charge had much more liberty than in the public schools. There were a commercial group, a classical group, a scientific group and a manual-training group, the latter being considered fully as important as either of the others.

Supt. C. B. Gilbert having been called upon by the president to take part in the discussion of the manual-training high school, said the question as to whether there shall be any manual-training high school comes up to superintendents and boards of education. It is not merely a question of administration, but of principle. Shall the

work be educational, or occupational, or both? The great function of all public schools is to train democratic citizens. Any sort of separation of children into classes is directly antagonistic to democracy. Dr. Woodward's plea for specific manual-training schools was that boys should be put into the class that they were to stay in as long as they live. This building up of walls between classes is the great foe of democracy. All proper school training is social training, and the end is social efficiency. The tendency of the separate manual-training school is away from the democratic ideal.

Prof. Charles R. Richards took the ground that the special manual-training school is useful in giving pupils the opportunity to select courses adapted to fit them for their life work. He said:

"The views as to the place of manual training in the high school seem to be in irrepressible conflict. They are in conflict, I think, because they represent two distinct lines of thought in American education, but it seems to me the conflict is not an irreconcilable one. Mr. Gilbert presented just now, as he has done many times, a strong plea against the special manual-training high school, and his thought represents one of the ideals that dominates high school education in this country. The thing that he argues against, however, and that is such a bogie to him, viz., the manual-training trade school, seems to me entirely outside of the question. There is no immediate prospect of the manual-training school becoming a trade school or in any way making toward class distinction. Economic conditions absolutely prevent such an outcome.

"But there is another sense in which the manual-training school has a most important place as a vocational school, and this distinctly vocational character I believe it must soon assume. By vocational, I mean that it will have a large relation to the after needs of pupils in the direction of the industries. The history of the American high school shows a constant tendency to relate its instruction more and more to the needs of after life. We cannot get away from it. We may theorize about the culture value of the high school, the fact that it stands for the peoples' college, the idea that it should deal with only the general elements of education; but the history of the high school in America is a history constantly dealing with steps towards vocational ends. From the time the Boston Latin School was founded back in the 18th century every important step in the organization of the American high school has been a differentiation in this direction. That does not mean that the high school is to culminate in a series of trade schools, but it does mean, I think, that it has come to-day to be a school that represents a variety of courses, a variety of opportunities, among which the boy or girl elects the moment he or she enters upon its work. And why do they elect certain courses in preference to others? They select them because they find that certain things meet their temperaments, their characters, their abilities and consequently their needs in after life better than other things. The vocational meaning comes into this choice immediately. It is on this ground, surely, and no other, that the special manual-training school must find its place, if it has a place at all.

"At the present time our special manual-training high schools appear to be in a state of arrested development. They are hanging between two forces. On the one hand they represent an expression of this evolution towards vocational quality in secondary education, on the other they are held back from a logical development by the ideal in American thought that the secondary school should be purely a culture

school—that into its instruction should come nothing of utilitarian meaning or value.

"In this position these schools are at present neither fish, flesh, nor fowl. Their results are not sufficient as technical schools to warrant their extensive equipment, their expensive corps of teachers and the time given to the work. On the other hand all this equipment, time and expense are too great to justify on grounds of mere culture values. It seems to me we are at a half-way point. Mr. Gilbert says we must not differentiate, but we do differentiate. We differentiate, in the first place, when most of the pupils stop with the elementary school and some go on to the high school; we differentiate when a smaller number go on to college; we differentiate, further in all this election in the high school between the commercial course and manual-training course and the English course and the college preparatory course.

"Have you ever examined the courses of study of the commercial high schools that are developing about the country to-day? You will find the curriculum of these schools immensely more technical in its character than any manual-training scheme that has ever been put in practice. We do not seem to be troubled with the technical idea when it comes in the form of book work. It does not call for attacks on the score of utilitarianism, trade work and all that, but as a matter of fact the courses represented in some of these commercial high schools represent far more strictly technical and vocational work than has ever gotten into the manual-training schools.

"At the present time we are in the position of trying to do two things with these latter schools and are not succeeding at either; we are trying to put a quart into our pint bottle. We have endeavored to have them remain culture schools in the old sense while we have made them to a certain extent vocational schools in the new sense.

"We have argued and discussed and struggled with this question of whether we can get as much academic work into these schools as in the old schools. All of us know, when we permit ourselves to face the matter squarely, that we cannot get as much of the older studies into these schools if we take out twenty-five to fifty per cent of the time and give it to technical work. And what is the use of trying? Why don't we give up the effort to do this thing that the old schools are doing and endeavor to do something new that is along the tendency of our times and which will meet the needs of the times? Why don't we develop the scientific, the economic and the artistic aspects of the industries and make culture values out of these? Is it impossible to think of culture in terms of real life?

"When I speak of vocational schools do not imagine that I am thinking of trade schools. I am not, simply because we cannot have them at this stage, but I do mean vocational in the sense that these schools may prepare in a broad way for boys to more readily enter into and to accomplish more intelligent and effective work in the whole field of the industries. Not to work at the bench; because the boys who go into that field do not and cannot go to the high school. That is the only difficulty, but that is such a difficulty that it makes the whole discussion of trade schools in this connection entirely waste time. Those who go to the high school in the present condition of things are those who will go beyond the bench, beyond the artisan's work.

"Among such as enter industrial pursuits they are those who become draftsmen, designers, experts, superintendents and business managers. What shall this school do for them with its large shops, its expensive equipment and its many instructors if it does not prepare them the better to enter and understand their vocations? This

is an industrial country; it is fast becoming a manufacturing country. Over twenty-four per cent. of all wage-earners are connected with mechanical and manufacturing occupations, and in addition a very large per centage are engaged in pursuits related to those industries. Is all this such a small factor in our national life that it can be left out of our schemes of education? I do not believe that it can, and I believe that the recognition of this fact will carry our manual-training schools on until they become technical schools. To stay where they are is not to fulfill their destiny. That destiny, if we can judge anything by the past, is to become schools that will have a real and distinct vocational character.

"There is another phase of manual training in the high school, viz.: as an elective in the regular high school. Here manual training stands in a different relation. Here its purpose is to convey some knowledge of the industrial arts, but mainly to afford the healthy stimulant of creative work and the opportunity for an art influence. This kind of work has its place in the general high school, just as other subjects have their place for its culture value.

"The expansion of the last few years has been largely in this direction, and the work developed in certain places seems to me to be typical of the natural character of work in this field—work that is not as intensive as in the regular manual-training school, not so much in the lines of forging, pattern-making and machine work, but along less mechanical lines of the arts and crafts, where fine stimulating work can be had with comparatively small equipment.

"And so it seems to me that there are two kinds of manual training which have their place and which will develop in our high schools because they each represent tendencies and principles in American education."

FUNDAMENTAL PRINCIPLES IN MANUAL TRAINING.

Mr. Henry C. Pearson, of the Horace Mann School, New York City, speaking on this subject, held that the old method of arranging a series of models in logical sequence was lacking in pedagogical value. We are now coming to understand that the child's attitude towards the things with which he is occupied should have first consideration. In the Horace Mann School the children are led to work out the problems of life much as they were worked out by primitive men. They study the cave man, as developed in Waterloo's "Story of Ab", the Eskimo, the Indian and the dwellers in tropical regions. A large variety of material is used, and as many kinds of work carried on, the object in view throughout being the interpretation to the child of his environment through his own activities.

Mr. A. E. Dodd thought the work of the Horace Mann School, as outlined by Mr. Pearson, admirable as it is, hardly adapted to the majority of schools throughout the country. Teachers were not trained to appreciate it. A more practical plan for the present seemed to be to take the home, the school or the community as a center.

Mrs. Ida Hood Clark, Supervisor of Manual Training, Milwaukee, in discussing "The adaptation of primary work to number of pupils in primary grade," gave an account of the primary work in the public schools of Milwaukee, where manual training was introduced something over a year ago. No special teachers are employed. Teachers are not held to a definite amount of work during the term. Clay has been used in the first grade, then weaving, paper work etc., with woodwork in the fifth and sixth. Models are adapted to school interests. Among them are book-covers, envelopes for work, bags for books, doll-houses and many other things. The sewing

classes made designs for collars and cuffs, for marking handkerchiefs and napkins and for the decoration of table covers. Much interest was manifested in Mrs. Clark's description of the work, which was illustrated by a number of samples, and considerable discussion followed which must be omitted here for want of space.

THE QUESTION OF SPECIAL TEACHERS IN PRIMARY SCHOOLS

was dealt with in a paper by Miss Lucy H. Weiser, of Teachers College. Though there are several advantages in the system of specialization, these are, in the primary grades, undoubtedly overbalanced by the disadvantages, chief among which is the danger of the work lacking unity and balance. In the primary grades the work of the specialist is more largely that of supervision than of direct teaching. A broad foundation of general knowledge is required in a special teacher, as well as thoroughness in his own subject. Lacking such general culture the teacher would probably fail to realize that her work is not so much to teach any particular subject as to teach children.

Dr. M. A. Bigelow gave a brief discussion of "Correlation of Nature Study and Primary Manual Training."

The method of nature study consists largely in learning by doing, and this is the basis for all important correlation between the subjects. Many things of value in nature study may be made in the workshop, e. g., plant presses, cages for pets, specimen boxes, apparatus, such as the compass, the weather vane and the windmill. For out-door nature study, besides work in the garden, there may be made plant labels, stakes, seed boxes, etc. Correlation, however, should not be forced. Let it be utilized only when of advantage to both studies.

In discussing the correlation of nature study and manual training Mrs. Rita Bartholomew, of the State Normal School, Frostburg, Md., gave an outline of the work as conducted under her supervision, manual training being adapted to the needs of the children in their nature study, and therefore varying with the seasons. Mrs. Bartholomew did not agree with Mr. Bigelow that the study of primitive life was an unsuitable field for the correlation of manual training with nature study. Children could easily imagine themselves as Indians and construct canoes, wigwams and various implements suited to primitive times.

THE DEVELOPMENT OF CREATIVE INSTINCT THROUGH THE MANUAL ARTS

was the subject of an address by Dr. James L. Hughes, Inspector of Schools, Toronto. Such development should be achieved, said Dr. Hughes, through "liberty under law". Within some forty years we have passed through six stages of school ideals. Three great divisions may be made and each of these had a passive and an active stage. First, the receptive; second, the reflective, and third, the executive. In the receptive stage we first sought to give the child knowledge, then to train him to investigate and get knowledge for himself. Ten or fifteen years later came the reflective stage, when we attempted to make the child think by allowing other people's thoughts to run through his head; then we trained him to think for himself. Now we have come to the executive stage where the child is trained to do things. In Europe they are still in the passive phase of this stage, training children to work out plans which some one else has made for them; here, at last, we are learning to let the child exercise his creative instinct and work from his own plans.

At the close of an eloquent address which held the audience closely interested for an hour and a half, Dr. Hughes said, "I have tried to show you the reason why

I believe in work in the manual arts in the earlier stages, chiefly, of a child's life, for the purpose of continuing this creative process—not originating it, God put it there —but of continuing those three great elements of character, the tendency to do things, the tendency to be self-directive in doing, and the tendency to be co-operative in doing".

The Saturday morning session was devoted to domestic science and domestic art, Miss Edith Greer, of Pratt Institute, in the chair.

DOMESTIC SCIENCE IN THE HIGH SCHOOL.

This subject was treated by Miss E. R. Rushmore, of Brooklyn Manual Training High School. Miss Rushmore believed the chief need of domestic science today to be one of internal organization and development. Much difficulty results from the fact that in many schools domestic science is taught two or three years before any instruction is given in physics or chemistry; the result being that the pupil must do things without knowing why, or the teacher must spend much time in teaching the natural sciences. In general there is, in domestic science teaching in the high school, too little of the inductive method and too little balance between theory and practice. Domestic science should make the work in natural science effective by putting it into concrete form.

Miss L. Ray Balderston, of the Boardman Manual Training High School, gave a brief account of the domestic science work done at that school. There the teacher of domestic science was obliged to give lessons in elementary chemistry in the first year, but the regular course in chemistry is taken up in the second year. Laundry work and home nursing were taught in addition to cooking. Miss Balderston agreed with Miss Rushmore that there was a lack of co-operation between teachers in all branches, and that this condition might be and should be corrected.

"Co-ordination Possible and Desirable in the Grammar School" was the theme of an address by Miss Mary S. Snow of Pratt Institute. A first essential in domestic science is that the teacher shall be in sympathy with the grade teacher. The first step in correlation should be correlation with the child, then with his social environment. We should know something of the home life of the child. Domestic science may easily be correlated with physics, geography, history, language, fine arts, physiology, arithmetic and drawing. In concluding her address Miss Snow showed drawings of a house and lot as a sample of school work. The pupil (a girl) had selected the lot, planned the grounds, drawn complete plans and elevation of the house, estimated the cost, selected colors for the rooms and estimated the cost of maintenance.

A report from a committee on hand-work for girls in grammar schools was submitted by Miss Irene McDermott, of Allegheny. The course outlined recommended that nature study, drawing, painting, clay modeling and working in wood should all be used where opportunity permits, boys and girls working together in the beginning. Girls should then be taught sewing, but care should be exercised not to make the work too exacting. In this each school should be governed according to its environment. Girls may be allowed to begin cooking in the sixth school year. Art, with manual training, should begin with the first work.

Speaking on the topic of the day, Mrs. Clark said that the teachers coming from the East believed that domestic science should be taught only in the seventh and eight grades. In Milwaukee 98 per cent. of the children never reach the seventh grade. There are 40,000 children receiving manual training, and there is no reason

why 38,000 of them should be denied domestic science. Boys, as well as girls, should receive some instruction in this line.

Other speakers also favored the introduction of the work earlier in the grades.

Dr. James P. Haney, Director of Manual Training, New York City, addressed the meeting on

THE PROFESSIONAL STUDY OF THE ARTS.

The four main propositions laid down were—first, that the advance of the arts is determined by the work of those who represent them; secondly, that professional advance comes chiefly through study; thirdly, that in the broad field of the arts persons of varying tastes may find ample material with which to occupy themselves; and fourthly, it should be the business of each individual to undertake some specific form of study with a view to living, so far as possible, the professional life. Strong emphasis was laid upon the care necessary to the creditable preparation of professional papers, the recommendations on this point being practically the same as those given before the school Crafts Club, and outlined in the MANUAL TRAINING MAGAZINE for April. The address was concluded by an eloquent appeal for higher ideals and greater professional pride on the part of all engaged in the teaching of the arts.

The concluding paper of the session was that by Mr. F. H. Ball, Supervisor of Industrial Schools, San Juan, on "Industrial Training in Porto Rico."

The usefulness of the industrial schools had been demonstrated by the fact that in many cases lessons learned there had been taken home and put into practice. The native puplis are quick to learn, making as good progress, probably, as the average American child of the same age, but they are less reliable, sometimes leaving school on account of some fancied wrong. The work is hampered by the pride and distaste for manual work which obtains among the wealthier classes. Another difficulty is found in the physical weakness of many pupils, due chiefly to climatic and hereditary influences. The closing of some of the industrial schools by the withdrawal of government support was regarded by the people as a great calamity.

BUSINESS MEETING.

The following resolution was unanimously adopted:

Resolved, That a committee of five be appointed with power to arrange a meeting in common next year with the Eastern Art Teachers' Association, to co-operate with the committee of the Eastern Art Teachers' Association in the development of a common constitution for the two bodies, and to arrange all other matters that shall be necessary for a union between the two Associations.

Messrs. Richards, Hetzel, Leavitt, Dr. Haney and Miss Hanna were appointed to serve on this committee.

Officers for the ensuing year were elected as follows: President, William Noyes; Vice President, Eli Pickwick, Jr.; Secretary, Henry W. Hetzel; Treasurer, Wm. F. Vroom; Executive Committee, Messrs. C. B. Connelley, T. R. Coggeshall, M. W. Murray, Miss Helen Kinne and Miss Edith Greer.

W. F. VROOM.

CURRENT ITEMS.

CLINTON S. VAN DEUSEN.

THE State of Massachusetts is investigating the trade school problem. Governor Douglas believes thoroughly in trade schools, and it has been his desire that the legislature should adopt a comprehensive scheme for establishing a system of schools in the larger cities of the commonwealth, each school teaching the particular industry most common in the city in which it is located. He would have the system comprehensive enough to include not only the manufacturing industries but agriculture, horticulture, forestry and animal husbandry. He would have small rural schools distributed over the state. At the head of the Governor's commission is Dr. Carroll D. Wright of Clark University.

MRS. ELLA FLAGG YOUNG has been elected principal of the Chicago Normal School to succeed Dr. Arnold Tompkins, whose untimely death left the principalship vacant early in August. Mrs. Young's election is merely a reasonable recognition of the service she has already done in Chicago as principal and assistant superintendent in the public schools and professor of education at the University of Chicago. Under her inspiring leadership the Normal School is sure to go forward rapidly.

THE St. Louis Manual Training School, of which Dr. C. M. Woodward is director, has just announced a normal class for prospective teachers of manual training. This announcement has come as the result of a realization of the impossibility of supplying the demand for competent teachers. It is recognized that graduates of the regular course in the school are, as a rule, too young, too immature and too narrowly taught to meet reasonable requirements; some college training is needed. "The daily program of the normal class will be substantially as follows: Two lines of shopwork will be carried on simultaneously—two hours in woodwork and two hours in metalwork; one hour will be given to lectures at the University in a department of pedagogy, science, mathematics or art, according to the taste or needs of the individual members of the class; and one hour, with unlimited outside practice, to the rudiments and theory of drawing".

CHICAGO has another reason for gratitude to Richard T. Crane, the giver of the Crane Manual Training High School building. Mr. Crane has agreed to provide for twenty-four cash scholarships of $300 a year each to be awarded to Chicago young men, graduates of manual training or technical high schools who wish to prepare themselves to teach manual training in the city of Chicago. The instruction to such students must be given at the Chicago Normal School, which is now well equipped for such work. The effect of this gift is intended to be to materially raise the standard of instruction in manual training in the Chicago public schools.

THE School of Applied Science of the Carnegie Technical Schools is to open for work the 16th of this month. This is the first department of these schools to be opened and has two divisions. In one a three years course is given to day students, preparing them for service in any one of the following vocations: Architectural, civil, electrical, railway motive power, foundry and mechanical practice. A student entering one of these courses must be at least sixteen years of age and must pass

examinations, or offer approved certificates, in English, mathematics, science and drawing such as might be obtained during the first two years of a high school course, but no student will be admitted who does not give evidence of a natural aptitude for technical work. The work of the first year is the same for all students, the course being designed to give a broad fundamental knowledge of the principles underlying the applied sciences. The work of the second division of this department is devoted to courses for night students, for whom work of a similar character is provided.

E. A. BENDING resigned his position as principal of the Hackley Manual Training School at Muskegon, Mich., at the close of the last school year, and is succeeded by James F. Barker, of Grand Rapids, Mich.

MANUAL-TRAINING work will be introduced in the schools of Niagara Falls, N. Y., this year. W. B. Stookey, of Warsaw, Ind., will have charge of the work.

H. A. DAVIS, formerly of Muskegon, Mich., has gone to Miama University, Oxford, Ohio, to establish a department of manual training. Most of his students will be members of the normal department, established three years ago.

JOHN W. CURTIS, who sailed for the Philippines last spring, is in charge of the manual training work at the Cebu Normal School, and Mrs. Curtis directs similar work in three central schools in the city of Cebu.

S. L. SMITH, of the East Division High School, Milwaukee, Wis., has accepted the position of instructor in manual training at the DeKalb (Ill.) State Normal School. The place he left vacant has been taken by Charles D. Webster, supervisor of manual training at Bay City, Mich.

VINCENNES, IND., is to have a supervisor of manual training next year. Louis A. Herr, formerly principal of a school in that city, has been elected to the new position.

CHARLES W. KENT has left the supervisorship of manual training in Rock Island and accepted a more attractive appointment as instructor in manual training at the State Normal School, Los Angeles, Cal. Mr. Kent will be missed by many Illinois friends.

MR. FRANK H. BALL, for the past two years supervisor of industrial schools on the island of Porto Rico, has been appointed to the recently-created position of director of manual training in the public schools of Cincinnati. Mr. Ball will devote his first efforts to providing work for the seventh and eighth grades.

GEORGE F. BUXTON, of Springfield, Mass., has gone to Menominee, Wis., to take the place in the Stout Manual Training School made vacant by the resignation of John H. Mason.

THE president of the Western Drawing and Manual Training Association has announced the following committees for the meeting in April: Program—Wilhelmina Seegmiller, Indianapolis; Lillian S. Cushman, Chicago; C. S. Hammock. Cedar Falls. Publication—Mary E. Chamberlain, H. M. Brooks, Lelia B. Crabbe, of Saginaw, and W. S. Hiser, of Richmond, Ind. Exhibit—Virginia M. Jackson, Detroit; Harriet M. Cantrall, Springfield, Ill., and Ida M. Tindall, Pontiac, Ill.

DR. JAMES P. HANEY, director of art and manual training in the boroughs of Manhattan and The Bronx, New York City, conducted a School of Design during

the month of August at Cohasset, a town a short distance from Boston, on the Massachusetts coast.

The school was organized for the purpose of affording supervising teachers of art and manual training an opportunity to familiarize themselves with the methods of developing design along the lines which Dr. Haney has instituted in his teaching in New York City. The work offered was diversified in character and included study of the principles of design and color, of plants and flowers and their conventionalization and use in pattern. Twenty-five charts of drawings completed the work of the term, which covered the different phases of design usually touched upon in elementary and high schools.

Besides the drawing of these charts the course offered a number of lectures on the principles of supervision. These lectures were a development of some chapters on the subject presented by Dr. Haney in the 1903 Year Book of the Council of Supervisors, and since then amplified by him in his lectures to the large corps of supervising teachers in New York City. With the conferences which succeeded them, these lectures afforded the members of the Summer School an unusual opportunity to review the professional aspects of their work.

PHILADELPHIA.

ALICE G. HUNTER, teacher of drawing and design in the Industrial Art School, has just returned after an eight months' sojourn in Germany, where she had been conducting a summer school during the past three months.

THELLWELL R. COGGESHALL, superintendent of the mechanical schools of Girard College, spent part of his summer in a journey to Panama, on government business.

WALTON GERHARD, until recently instructor in woodworking in the Camden High and Manual Training School, has lately been appointed supervisor of manual training for the schools of that city.

THE public school at Swarthmore has been enlarged by a three-story addition. It is expected that the manual-training department, of which Geo. F. Foth is director, will be given considerably more space.

THE B'nai B'rith Manual Training School has just moved to a building of its own at 410 Christian street. For eight years previous it had occupied rooms in the building of the Hebrew Education Society, at Tenth and Carpenter streets. With the school's removal to larger quarters, the director, Dr. Ernest B. Kent, announces three new courses: pattern making, molding and casting, and electrical engineering.

THE Northeast Manual Training School, after fifteen years' occupancy of a dingy, overcrowded and altogether inadequate building in a back street in Kensington, has at last moved into its handsome new building at the corner of Eighth street and Lehigh avenue. This is the first building erected by the city for manual-training purposes, and the equipment, it was intended, should be in its completeness worthy of a city which believes so thoroughly in the high-school phase of manual training. Even with this increase of accommodations the old building will be used as an "annex," to provide for the freshman classes during part of their time.

WORK is proceeding rapidly on the building for the new Southern Manual Training School at Broad and Jackson streets. Ground was broken last spring, and the building, it is expected, will be ready for occupancy in September, 1906.

At the Central Manual Training School the equipment for wood-turning has been considerably improved by the introduction of eight new lathes and benches, the whole designed by and built under the direction of Mr. John B. Alker, instructor in the department of pattern-making, carving and wood-turning. There are two heavy double benches on cast iron frames, each supporting four lathes of 12-inch swing, and at the end of each bench, fastened to its underside, is a one and one-half horse-power electric motor (direct current, 110 volts). This drives two line shafts, one under each pair of lathes, and a clutch operated by a lever above the bench throws power on or off at the will of the student. Besides doing away with the nuisance of overhead belts this arrangement has been found, after several months' running, to be almost noiseless and shakeless. The entire turning equipment of the department will now be remodeled according to the new designs. Mr. Alker will soon install several similar benches in the new building of the B'nai B'rith Manual Training School.

—H. W. Hetzel.

THE ILLINOIS MANUAL ARTS ASSOCIATION.

Preliminary announcement has been made of the program of the next meeting of the Illinois Manual Arts Association, to be held with the University of Illinois, Urbana, Friday and Saturday, February 16-17, 1906. The Executive Committee reports that it has received very hearty responses from those who have been called upon to contribute to the program, and the prospects for a successful meeting are excellent.

The principal address at the Friday evening session will be delivered by Superintendent W. H. Hatch, of the Oak Park public schools. Mr. Hatch, by reason of his personal interest in the work for which this association stands, and his wide experience in educational affairs, will be able to bring something both inspiring and practically helpful.

At its last meeting in Peoria the association definitely committed itself to the idea of attacking certain problems, with the purpose of carrying the investigations through a period of years, if necessary, to reach conclusions. This policy the Executive Committee is making every effort to forward through the work of the various committees created for this purpose.

Louis A. Bacon, Indianapolis, is to write a paper upon a topic to be announced later, showing definitely and practically some of the things that may be accomplished through the co-operative efforts of supervisors of drawing and manual training.

A committee of members has been set to work upon the problem of enriching the work of the manual arts in grades seven, eight, nine and ten: H. G. Hatch, Rockford; W. F. Raymond, Peoria; S. J. Work, Elgin; Miss Anna G. Brown, Jacksonville; A. C. Bloodgood, Aurora; Douglas Donaldson, Joliet. This committee is to report on what other subject (than woodworking) should come into the course in the last two years of the grammar school and the first two years of the high school.

Charles H. Bailey, recently of Milliken University, Decatur, now director of manual training at the Iowa State Normal School, Cedar Falls, is to continue his investigation into the equipment problem, with the idea of presenting at the next meeting some definite suggestions or plans for equipments. At Mr. Bailey's request a committee is to be appointed to serve with him in the prosecution of this work.

C. S. Van Deusen, Bradley Institute, Peoria, will continue his study of methods of wood finishing, and present at the next meeting a summary of his conclusions in the form of definite suggestions for shop use.

As directed by the Association the Committee on Manual Training for Rural Schools has been increased from three to five members. Two of the original three members have resigned (L. A. Hatch, DeKalb, and Oscar L. McMurry, Chicago), and the committee has been reorganized as follows; W. T. Bawden, Normal, chairman; A. P. Laughlin, La Grange; L. H. Burch, Macomb; F. W. Kendall, La Salle; F. H. Rankin, Urbana.

A more detailed statement of the program may be expected later.

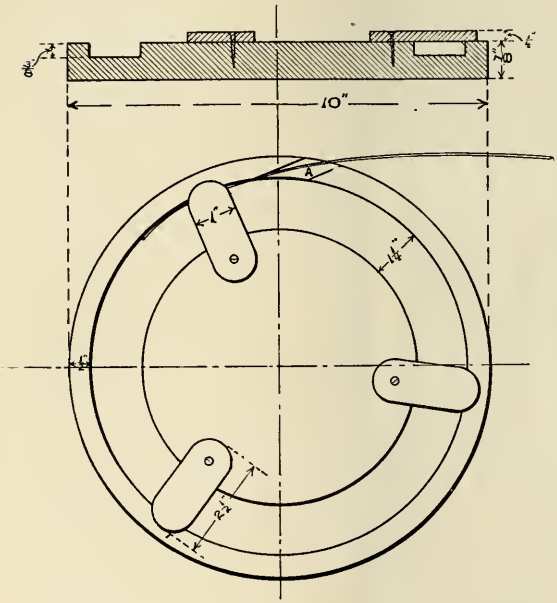
—W. T. Bawden. Secretary.

BREVITIES.

THE results of competition No. 2 will be announced in the January issue.

THE decorative initials used in the July number were contributed by Edwin V. Lawrence, and the photograph of applewood paper-knives on page 235 of the same number by Edwin W. Foster of the Brooklyn Manual Training High School. They were made in Sweden and carved later in this country by Mrs. Foster.

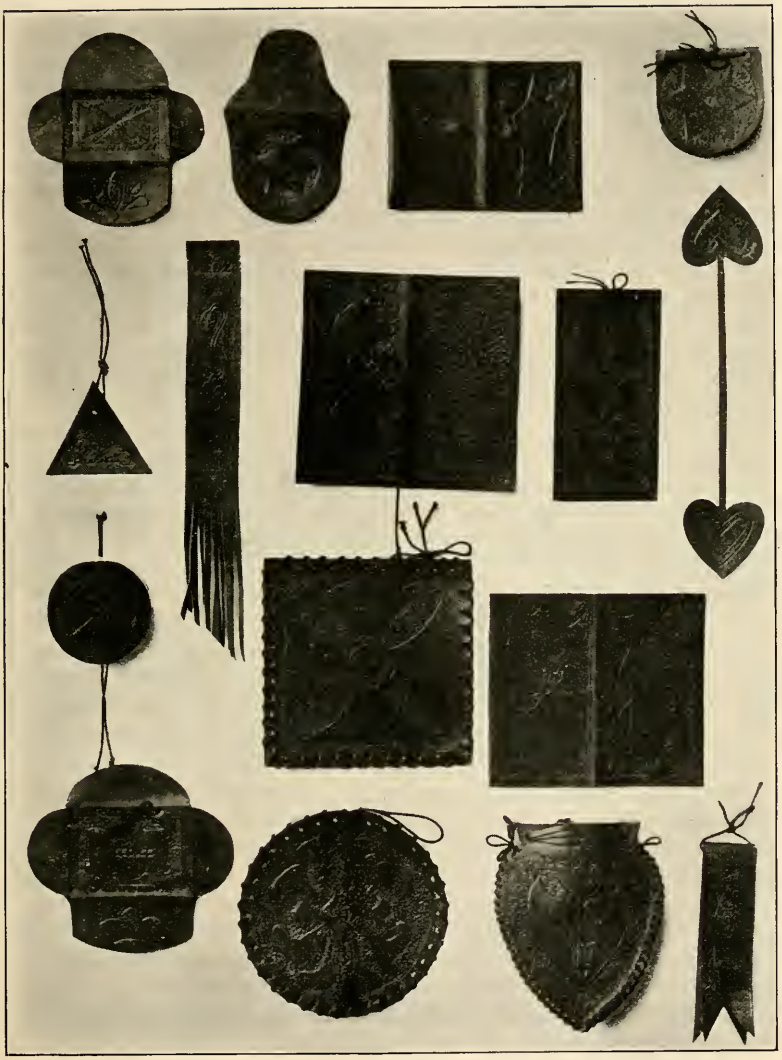
THE photograph of leather modeling on page 50, of clay modeling on page 52, and the brass lantern on page 56 of this issue were made by students at Bradley Polytechnic Institute—the latter by a second-year academy student and the two former by summer normal students.



THE drawing for the accompanying illustration was sent to us by Paul A. Dietrichson, of Oconomowoc, Wis. It is a device for holding the coils of ribbon iron for bent iron work, and its construction is a good problem for a student in wood-turning. The groove is made large enough to hold coils of ¼ in. or ⅜ in. iron. The three buttons which hold the coil in place are located with reference to the opening A, through which the iron is drawn out. The outside edge of the block to the right of A may be graduated, or a 12 in. brass scale may be wrapped around and fastened. This will facilitate cutting off the desired lengths of iron.

THE USE OF SCREWS.

ANY one who has an opportunity to observe tendencies in manual training work cannot fail to see that grammar-grade woodworking is undergoing a change. A few years ago one would often find joints and exercise pieces in the work of these grades, but with few exceptions these have given place to modified sloyd models. Now there is a marked tendency, even among the sloyders, to allow individual projects, especially larger pieces of furniture, such as seats, bookcases, desks, chairs, clocks and tables, to displace some of the models in their carefully arranged series. These pieces of furniture rarely show much originality on the part of the student, and we ought not to expect much, but they do usually represent the individual student's choice and often considerable "working up" of the project from suggestions ob-



TOOLED LEATHER WORK DONE BY GRAMMAR-GRADE PUPILS, OAK PARK, ILLINOIS.

See article on "Leather Work in the Grades," by Ira S. Griffith. MANUAL TRAINING MAGAZINE, Volume V, page 192 (July, 1904).

tained from a furniture catalogue, a magazine, or from data given by the teacher. Most boys will respond heartily when given such a problem. The teacher's success in directing such work depends upon his ability to keep the problems within the capacities of the individual students and his insistance on having the work done thoroughly from beginning to end. Only when done in this way will the finished piece yield that lasting satisfaction to the worker which is one of the finest rewards of labor.

In trying to adapt work of this type to the capabilities of individual children one of the problems that presents itself to the teacher is how to find satisfactory substitutes for the more difficult joints used in the construction of good furniture. Even if the child has developed skill enough to make mortise-and-tenon joints (and many have not) the time for work is too limited to allow of their multiplication. One way of meeting this difficulty has been brought to my attention twice within the past few months—once when I visited the Illinois State Normal University, and again when I saw the Oak Park exhibit at the meeting of the Western Drawing and Manual Training Association. At both places I noticed to what an extent screws were being used to take the place of framing joints.

At Normal a student had made a corner cabinet, Fig. 1, page 49, consisting of several triangular shelves one above the other, well spaced and fastened with round-headed screws. With the grain of the wood running as it did this form of construction was very satisfactory. One of the dangers in this method of fastening is that pupils will put ordinary screws into the end of the grain, as at E and F, Fig. 2, instead of at A, B, C and D, where they go into the wood at an angle to the grain sufficient to insure holding fast when in use. The drawings of the two tabourets in the same illustration are from pieces constructed under Mr. Bawden at Normal.

Another use of screws—this time both round-headed screws and lag screws—is shown in the clock on page 45. This was made by one of Mr. Griffith's pupils at Oak Park and is a substantial piece of furniture. While screws should not be allowed to supplant the time-honored framing joints they may precede such joints and at times used with excellent results by a wise teacher.

THE Boston standard for teachers of manual training in high schools is indicated by the character of the examinations. Candidates for the special manual training and mechanical drawing certificate for high schools must pass (a) an elementary examination in (1) English and American literature, (2) one foreign language or algebra or geometry, (3) psychology and principles to education, (4) essay, (5) general history; and (b) an advanced examination in (1) manual training, (2) mechanical drawing, and (3) either freehand drawing, history of art, or composition and design. The questions in a recent examination in history of art were the following:

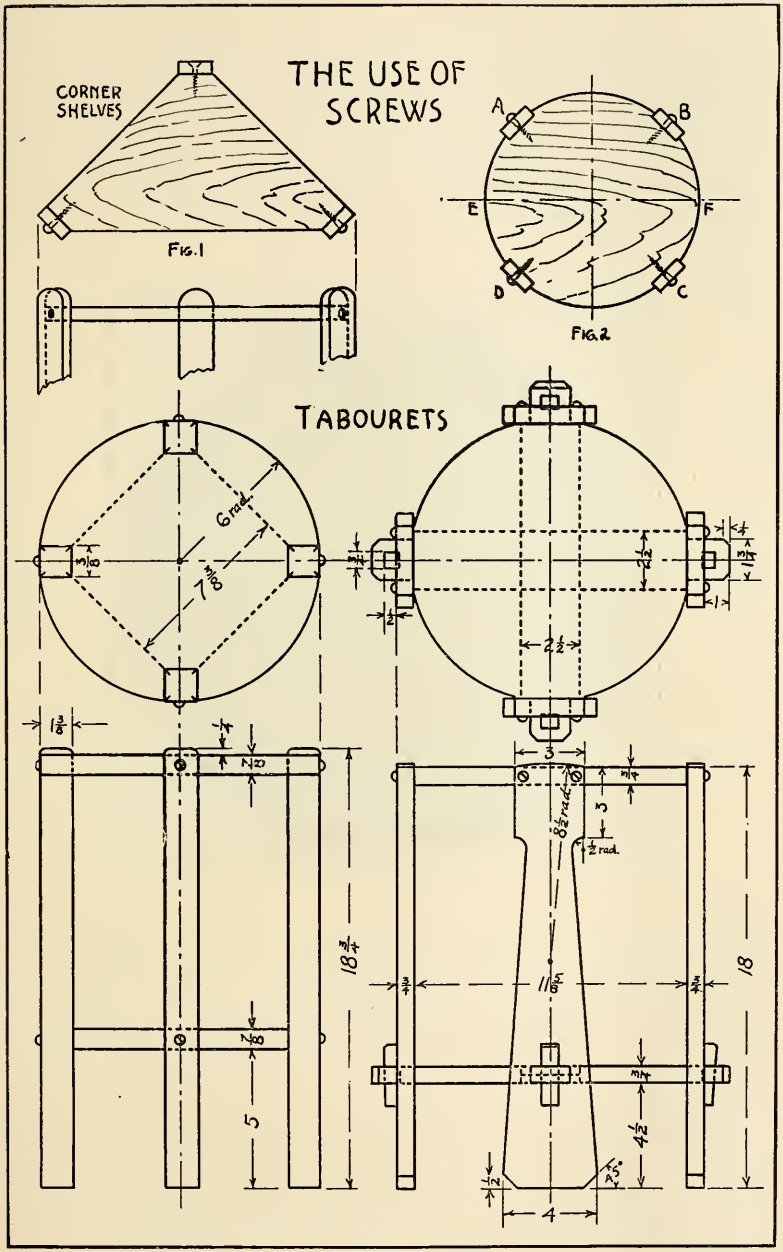
1. Illustrate by notes and sketches the points you would touch upon in giving a talk to a high school class upon historic iron-work.

2. Describe the art-crafts in stone, glass and wood of the cathedral builders.

3. Give an outline, with sketches of the development of artistic pottery through the historic schools.

4. Outline the development of artistic book-making from the period of the illuminated manuscript to the present day.

5. Describe the decorative use of terra cotta in the city of Florence during the Renaissance.


THE USE OF SCREWS
CORNER SHELVES
FIG. 1
A
B
E
F
D
C
FIG. 2
TABOURETS
6 rad.
7 rad.
3/8
1 3/8
1/4
2 1/2
1 1/4
1 3/4
1/2
1
3
3/4
1/2 rad.
1 5/8
4 1/2
25°
4
18 3/4
18
5
7/8

EXTRACTS FROM ADDRESSES ON THE MANUAL ARTS AT THE NATIONAL EDUCATIONAL ASSOCIATION MEETING AT ASBURY PARK.

"WHEN manual training was first brought forward it was with the view of its use as a means of mental development; it has, however, a much wider field, a more precise application and an actual educational value of great practical utility. We are all conscious of the tremendous progress in mechanical development that has taken place within the past fifty years, more especially during the last twenty years, and that is still going on at an increasing ratio. It was not so very long ago that the great source of wealth was in agriculture, where work was performed by the most

rudimentary of unskilled labor, while even in mining and in the mechanical arts implements were of the crudest form. On the strength of men's arms, legs and backs was the main reliance for power. To-day it is hard to call to mind a single trade in which machinery of intricate form does not enter in some degree, and usually to a great extent, machines requiring on the part of the operative some knowledge of mechanics, some experience in manipulation and some skill in manual dexterity.

* * * * * * * * * *

"Instead of great force and latent energy without control; instead of quiet gentleness without restriction, or of power or control without vigor to be controlled, what we need is force and energy applied where necessary and always under control, always working to a definite purpose and at the same time avoiding complications and unnecessary friction. That is, to have a life whose great underlying motif is efficiency, and, instead of speaking of the strenuous life or of the simple life, let us

have before us as a doctrine 'The Effective Life' "—*William Barclay Parsons of New York City in his address before General Sessions on "The Practical Utility of Manual and Technical Training."*

THE forces of combination—the labor union and the trusts—are united and are working in harmony to accomplish at least one thing. They are united in a tendency to make, of a great percentage of our population, commercial or industrial automatons. They both tend to subdivide labor and thereby limit the opportunity to acquire a comprehension of broad principles. They both tend to circumscribe the field of the apprentice, narrowing his opportunity, forcing him into petty specialization and restricting his free and intelligent development. All this is placing us in grave danger of evolving an industrial race of automatic workers, without diversity of skill, without an understanding of principles and without a breadth of capacity. There is but one power that can counteract that tendency—that power is the schoolmaster.

"I have had an unusual opportunity to study the underlying causes of the economic success of Germany, and I am firmly convinced that the explanation of that progress can be encompassed in a single word—the schoolmaster. He is the great corner-stone of Germany's remarkable commercial and industrial success."—*From the address on the "Economic Value of Trade Schools", by Frank A. Vanderlip, vice-president of the New York National City Bank.*

OUR people are not going to rest satisfied with mere manual training. The Mosely Commissioners pointed out that the great defect in American education is the absence of trade schools. Trade schools will inevitably come. The sooner the better. They are demanded for individual and social efficiency.—*From Dr. Maxwell's address as president of the N. E. A.*

"I BELIEVE the children being trained to-day are far more concerned with the industrial processes of to-day than they are with the industrial processes of primitive peoples, and I cannot bring myself to the belief that nature has made so great a mistake as to bring children into the world at any given stage of the development of civilization lacking the capacity to enter into that civilization without going through all the preliminary processes and steps through which it has been evolved.

"I am not undertaking to argue the question as to whether the child in his unfolding must live over again in his development the development of the race, and must begin where the race began; but I do undertake to express my belief that if this be true, he is at the time he enters the public school advanced far enough in this process of development so that some systematic effort may be undertaken for his training through the utilization of his immediate environment, and that it is unnecessary to attempt the difficult task of reconstructing the environment of primitive peoples which find no proper place in the environment of to-day.

"We have been making the mistake in our public school work of assuming that the child can be taken from the home, where its activities before entering school have been concerned chiefly with things, and that during the school period each day we may entirely change the form of his activities and invoke the activities which come from the use of books."—*From address on "Manual Training in the Grades", by Lorenzo D. Harvey, supt. schools, Menominee, Wis.*

"WHEN the home no longer provides opportunity for industrial occupations and the centers of industrial activity are practically closed it behooves the school, for

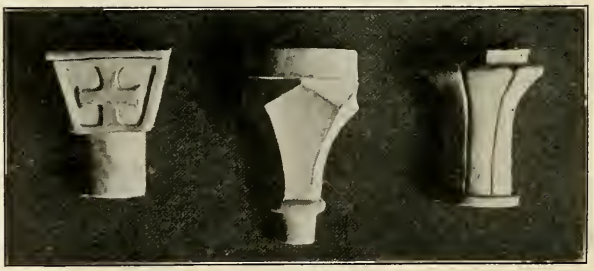
social, educational and industrial reasons, to make provision for bringing children into sympathy with the great industrial forces which move the world and to provide opportunity for a measure of creative work in the fashioning of materials into forms of use and beauty.

"The school recognizes the need and educators who have at heart the highest development of the three royal H's—the Head, the Heart and the Hand—are earnestly endeavoring to provide for it."—*From address on "Hand-work in Primary Schools", by Wilmelmina Seegmiller, director of art, Indianapolis, Ind.*

"SEVERAL countries noted for their progress oblige apprentices to attend professional schools where art instruction with direct reference to local industries is made very important. The immense progress of German industry is attributed to obligatory attendance on professional instruction. Foreign countries appoint experts to investigate and report on these means of advancing commerce. Our country has never done so."—*From address on "Lessons from the International Drawing Conference at Berne", by Charles M. Carter, director of art, Denver, Col.*

"MUCH of the primary drawing and industrial work in our exhibitions, as well as writing and arithmetic and other studies in these grades, is pitifully the work of the teachers—done more for the sake of result than for the sahe of the child, and done at the expense of over-wrought nerves and body.

"In the primary grades there should be much less teaching and instruction—much more and better stimulus to live this precious period in a natural way and to express it in a manner that is truly childish."—*From address on "The Aims of Drawing in the Primary Grades", by Emma M. Church, Chicago Academy of Fine Arts.*



REVIEWS.

The Interdependence of the Arts of Design. By Russell Sturgis. A C. McClurg & Co., Chicago, 1905; 6½×10 in.; pp. 227; illustrated.

This handsome book contains the six "Scammon Lectures" delivered at the Art Institute of Chicago in 1904. At the time of their delivery the lectures were illustrated with lantern slides. Several of these have been reproduced, and now serve as excellent illustrations of the text.

To the teacher of any of the arts in schools, elementary or high, this volume is thoroughly to be commended. Its author is a teacher himself, of wide experience and ripe judgment, who has done much toward raising our national standard, of taste by setting the problems of painting, architecture and sculpture before the public, in attractive and easily comprehended form.

The present treatise is full of suggestions in its comparisons of ancient and modern art, and in its two important chapters on the industrial arts. To the student anxious to comprehend the very significant part which design has played and has still to play in human life and endeavor, this volume will prove of much service. No careful reader can peruse it without having his taste made more catholic and at the same time more discriminating. —*H.*

Elements of Mechanical Drawing. By Gardner C. Anthony. D. C. Heath & Co., Boston, 1905; 6×8 in.; pp. 152; fully illustrated; price, $1.50.

This new and enlarged edition of a standard text-book will be welcomed by teachers of mechanical drawing. The text is of a very direct and practical nature, and includes chapters on geometric drawings, conic sections, geometric and isometric projection. In the final section a large number of problems covering all phases of mechanical drawing are offered for solution. To one anxious to study or to review the subject this volume will prove an excellent compendium. It is very fully illustrated. —*H.*

Machine Drawing. By Gardner C. Anthony. D. C. Heath & Co., Boston, 6×8 in.; pp. 58, and eighteen full-page plates; price, $1.50.

This volume by Professor Anthony supplements the foregoing treatise on mechanical drawing, and teaches the practical application of the principles of projection in the illustration of machinery. It aims, in the words of the author, "to encourage a concise graphic expression in the colloquial phrases of modern mechanical drawing instead of the more classic language which would enforce a rigid adherence to the laws of projection, and the customs of several centuries of architectural draughtsmen."

The introductory explanations cover the drawings of bolts and screws, the arrangements of views in mechanical drawing, scales, sectional views, figuring and sketching. Then follow ten exercises leading up to the assembled drawing of a headstock of a 16-inch lathe. These exercises have been carefully chosen with a view to giving the student who completes them a large amount of practical informa-

tion through the working of a limited number of drawings. Teachers of manual, training high schools will find them particularly valuable as a brief course designed to cover the essentials of machine drawing. —*H.*

The Essentials of Gearing. By Gardner C. Anthony. D. C. Heath & Co., Boston, 1904; 6×8 in.; pp. 84, and fifteen full-page plates; price, $1.50.

This volume, also from the pen of the dean of the engineering department of Tufts College, forms an additional number in the series of Technical Drawing Manuals issued by D. C. Heath & Co. It is designed for students having no previous knowledge of kinematics, and is planned like the other works of the author as a manual for self-instruction leading to the development of the subjects through the solution of carefully selected problems. The introductory explanation on odontoidal curves is followed by chapters on the cycloidal and involute systems and on annular and bevel gearing. A chapter on formulas is added, with some pages of bibliographical matter. Nine typical problems are presented for solution. The explanations throughout are couched in language precise and non-technical. —*H.*

A Textbook of Freehand Leltering. By Frank T. Daniels. D. C. Heath & Co. Boston; 6×8 in.; pp. 34, and thirteen full-page plates; price, 75 cents.

This excellent little manual should be in the hands of every teacher who has to give instruction in mechanical drawing. Freehand lettering stands as an art in itself, and one well worth cultivating by students of every grade and class. For the mechanical draughtsman it is essential; nothing detracts more from a neatly made drawing than an indifferent title made up of several lines of tipsy freehand letters. Mr. Daniels' little treatise makes plain both the reasons and the methods to be adopted by the student who would gain proficiency in lettering. It includes a number of simple and helpful plates of alphabets and titles. —*H.*

The Technique of Sculpture. By William Ordway Partridge. Ginn & Co., Boston, 1895; 6×8 in.; pp. 118, illustrated; price, $1.00.

This little volume comes from the hands of a well known sculptor. It offers a detailed description of the processes essential to the making of a piece of sculpture, from the working of the clay to the final execution in bronze or marble. A bibliography of some fifty titles dealing with sculpture is appended. To the student and to the teacher of clay modeling anxious to be apprised of technical methods this work will serve as a handy reference. It contains an outline history of sculpture, and a chapter full of valuable hints in regard to mould-making, casting, and the tinting of casts. —*H.*

The World's Painters and Their Pictures. By Deristhe L. Hoyt. Ginn & Co., Boston; 5¼×7½ in.; pp. 272; illustrated; price, $1.25.

Of convenient size, this hand-book has condensed in its pages a large amount of information concerning the history of painting. To one anxious to become acquainted with the general field of pictorial art it offers a concise review of the early schools of southern Europe, and of the later painting of Italy, France, Spain, the Netherlands, Germany, England, and the United States.

The condensation of so much material makes the descriptions of the artists mentioned all too short, but the lines on the great masters are well weighed and illuminating. Over fifty excellent half-tones serve as illustrations. —*H.*

Mechanical Drawing. By Anson C. Cross. Ginn & Co., Boston, 1895; 6×8½ in.; pp. 197; illustrated; price, $1.00.

Among the smaller text-books on mechanical drawing this stands with the very best. Simple in statement and excellent in illustration, it is particularly well adapted to the needs of the grade teacher called upon to teach mechanical drawing. Principles are presented, and not a graded course of lessons, the volume being especially designed for those who are called upon to teach the rudiments of working drawing to pupils unacquainted with the principles of descriptive geometry. As a handbook for such instructors it will be found most helpful, while to technical students it will serve well as an introduction to more exhaustive works. —*H.*

Elements of Mechanics. By Mansfield Merriman. John Wiley & Sons, New York, 1905; 7½×5 in.; pp. 172; price $1.00 net.

This book by Professor Merriman of Lehigh University is a treatise on rational mechanics intended to precede the usual engineering course in applied mechanics. To read it only a knowledge of plain geometry, elementary algebra, and plane trignometry is required. In it constant appeal is made to experience, and a system of units is employed with which every boy is acquainted. It is intended for manual-training schools and freshman classes in engineering colleges. —*E.*

The Place of Industry in Elementary Education. By Katharine E. Dopp. The University of Chicago Press, 1905; 5×7¾ in.; pp. 278; price $1.00 net.

This is the third edition of this book. To the original treatise Miss Dopp has added fifteen pages of illustrations and a valuable chapter on the practical application of her theory to the study of colonial history. This stimulating book is now put into a form that will be of more practical value to most teachers. —*E.*

Daily Program of Gift and Occupation Work. By Carolyn Bailey and Clara M. Lewis. Milton Bradley Co., Springfield, Mass., 1904; 6×8 in.; pp. 90, illustrated. Though this volume has been written as a guide to kindergartens in laying out programs around centers connected with children's interests, in application its suggestions are by no means limited to the kindergarten. Primary supervisors and teachers will find in it many hints as to the possible relation of different forms of very simple hand work to lessons in language and nature study. —*H.*

Pencil Drawings of Trees. 12 Plates. By Charles H. Woodbury. Milton Bradley Co., Springfield, Mass., 1905; 12×14 in.; price, 50 cents, by mail 60 cents. It is a question whether Mr. Woodbury is better known for his beautiful marine paintings or for his frank and striking pencil work. To the many familiarwith the latter, the news of the publication of this latest series of drawings will be most welcome.

Beautifully reproduced from the originals, these plates offer strong and simple sketches of twelve typical American trees. As examples of "handling" they are excellent. Of their kind it would be difficult to imagine anything better or more helpful. They will serve well to stimulate an interest in pencil drawing in any classroom in which they may be shown. —*H.*

American Carpenter and Builder. Vol. I, No. 1; April, 1905; price $1.00 a year.

This is a practical trade journal published in Chicago at 196 Fifth avenue and is edited by William A. Radford. With him are associated several of the best-known American writers on carpentry and building and Ira S. Griffith, director of

manual training, Oak Park, Ill. Mr. Griffith's department is headed "manual training" and is intended for the boys. Each number will give practical instructions to the young workmen telling them how to build useful and ornamental pieces of household furniture. —*B.*

The following have been received:

Catalogue of the Manual-Training School of Washington University, St. Louis, Mo., 1905. This contains the floor plans, perspective, and a brief description of the new buildings now under construction for this historic school.

Industrial Drawing. Report of Walter Sargent, agent of the Board of Education of the State of Massachusetts for the promotion of industrial drawing, with appendix containing two papers: "Industrial Drawing from the Standpoint of an Architect", by Frederick Law Olmstead, Jr., and "Industrial Drawing from the Standpoint of a Manufacturer", by Milton P. Higgins. Boston, Mass., 1905.

A Chapter on Lettering. The Browning Press, Cleveland, Ohio; 6×9 in.; pp. 25; paper covers; price, 25 cts.

History of the New Iroquois. By William M. Beauchamp. New York State Museum Bulletin 78. New York State Education Department, Albany, 1905; 6×9 in.; pp. 461; 17 plates; price, 75 cts.

Any one who has been interested in Dr. Beauchamp's previous bulletins will be pleased to welcome this larger work.

Teachers' College Announcement, 1905-1906. Columbia University, New York City.

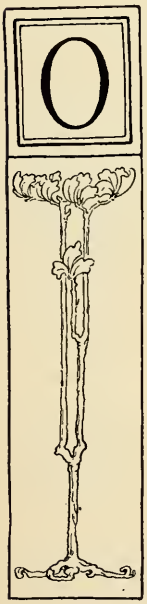
MANUAL TRAINING MAGAZINE

JANUARY, 1906

APPLIED DESIGN IV.[1]

JAMES PARTON HANEY.

If the student have one well-digested form at his command he can at least do some designing,—by well-digested I mean that its ready conversion to a long, or a broad, or a curved form is possible and has been rehearsed.
—Richard Hatton.



OUR study has thus far led us to consider the manner in which masses may be developed in design and elaborated into a variety of elements.[2] These elements are termed "abstract." They represent nothing in Nature but are simply beautiful shapes woven together by the skillful pencil of the designer. In not a few instances the abstract pattern may be applied with perfect propriety to constructed forms, but there are many other cases where it will be desirable that the designer give additional interest to his pattern by developing in the masses, conventional elements suggested by natural forms. Interesting as is the field of the abstract pattern, it is relatively limited when compared with the territory which has been revealed by designers who have found in Nature, beautiful shapes innumerable, waiting as it were, to be translated into design. The material thus offered may be termed "subject matter" and the designer whose purpose it is to use it, will be wise to keep it in view from the first step in his planning.

[1] Copyright, 1905, James P. Haney.

[2] The three previous articles of this series may be found in the MANUAL TRAINING MAGAZINE for April, July and October, 1905.

Attention must now be directed to the source whence this matter is derived and to the processes through which it must pass in its conversion into pattern. Of the steps in these processes only the briefest outline can here be given; to illustrate them in any detail would require an extended treatise.

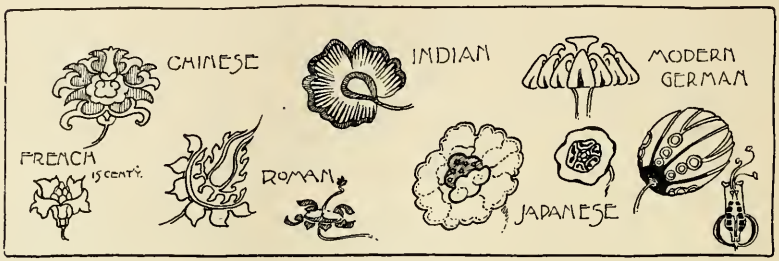


PLATE XXXI.

SUBJECT MATTER.

All design lays emphasis upon rhythm, and is thus led to employ in one form or another movements akin to growth. As the latter is a characteristic of all plant forms, these lend themselves with great ease to the adaptive process, but other natural forms, animals, clouds, waves, etc. are valuable and are frequently employed. The following discussion will be confined to plant forms. It is to be understood however, that the principles developed are applicable to all forms which it may be desired to use.

Some plant forms offer aspects more pleasing and decorative than others. With these the designer is chiefly concerned. The process whereby he fits them to the spaces of his pattern, and relates them to the character of the design, is known as conventionalization. This is a necessary process, in part conditioned by the peculiar character or style of the design, and in part by the particular material to which it is to be applied.

The designer is not at liberty to present forms in a naturalistic manner; his is not the business of photographic reproduction but of modification and relation, that he may produce a pattern at once harmonious in form and peculiarly adapted to its purpose. Light and shade he may present in a formal way but not so as to suggest depth. His design must possess a mural character, and by the formal nature of its details announce

itself as pattern and not as picture. Nature's suggestions are to be understood only as suggestions; her forms are the designer's inspiration, but in using them he should seek their most attractive aspects and should carefully avoid the error of the pictorial representation.

While thus under the necessity of adapting Nature to his purpose the designer must remember that he is not free to depart from the natural

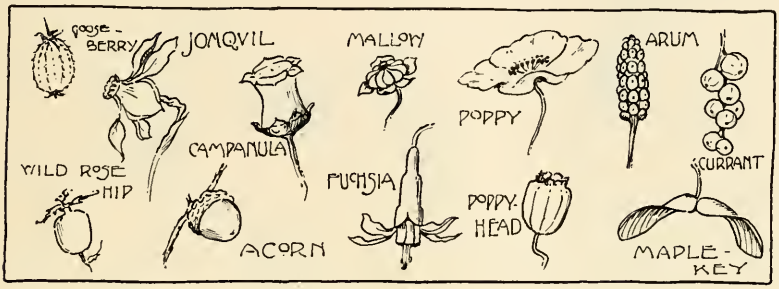


PLATE XXXII.

form very little in one particular and very much in another. His design in other words, must not be highly conventionalized in some of its elements while closely following the natural form in others. All parts should be formalized to the same degree, though practically there is no limit to the degree of formality to which the designer may proceed so long as he preserves a unity in the elements of his pattern. High degrees of conventionalization are to be found in every age and land in which design has flourished. In many cases units appear which have so far departed from their naturalistic form that it is difficult or impossible to say what was the natural growth which suggested them. (See Plate XXXI.)

STUDY OF NATURAL FORMS.

Of the plant forms which offer, there are some, which because of their proportions and decorative features are particularly adapted to the designer's use. Among the more familiar may be mentioned the poppy, the dandelion, the wild rose, the buttercup, the wild carrot, the fuchsia, the jonquil. Numerous of the seed pods are also valuable,—the rose hip, poppy head, acorn, and arum. Many others besides those mentioned are equally available. (See Plate XXXII.)

To employ any one plant with skill, the designer must be familiar with its growth and structure. He should first make careful naturalistic drawings of it, studying it to discover its most decorative aspects—those in which most pleasing space relations and attractive movements

Drawn by Alice C. Eames.

PLATE XXXIII.

of line occur. Sometimes (Plate XXXIII) these will be found in the half-open flower, sometimes in the foreshortened view of bud, seed pod or leaf, sometimes in the section of the blossom. Particularly he should study the structure of the form that he may become familiar with the manner in which the smaller stems separate from the main stem, the

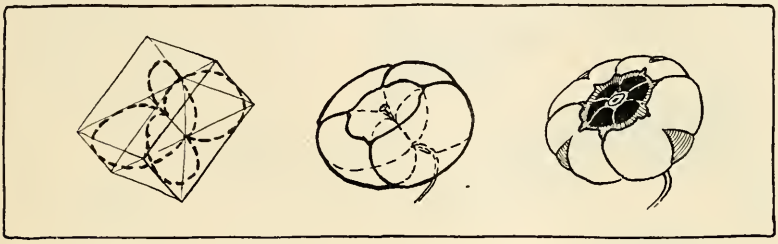


PLATE XXXIV.

flower attaches itself to the stalk, and the leaf whorls grow. He should make drawings of all these details, including sketches of the leaf, bud, flower and fruit when seen in profile and foreshortened. His purpose should be to know the plant well, that its anatomy and its appearance from various points of view may be familiar to him.

In seeking thus to discover the peculiar beauty of a natural form the student must not be satisfied to study the first example which comes to hand; he should rather seek to find a speciman unusually attractive and characteristic. If he have a number before him, he will often find it necessary to go to one for the most characteristic leaf, to another for the best example of a bud, and to a third for the most beautiful flower. His sketch book he should fill with records of Nature's happiest examples of decorative elements as they present themselves ready made. Unfortunately, however, many desirable plants may not be available for study at the time when the student is most anxious to make himself familiar with them. He will therefore be obliged to have recourse to books and photographs.

It will be of advantage to the student if he comes to a study of plates and prints well grounded in the principles of perspective and foreshortening. He must know the meaning of the term "good construction," and must see to it that every drawing he makes whether from the actual form or from a photograph, is well constructed. If he possess this knowledge he will be able to represent at will any particular element of a plant in any degree of foreshortening, and will be able to tell at a glance whether the bud or flower he has drawn is squarely planted on its stalk or not.

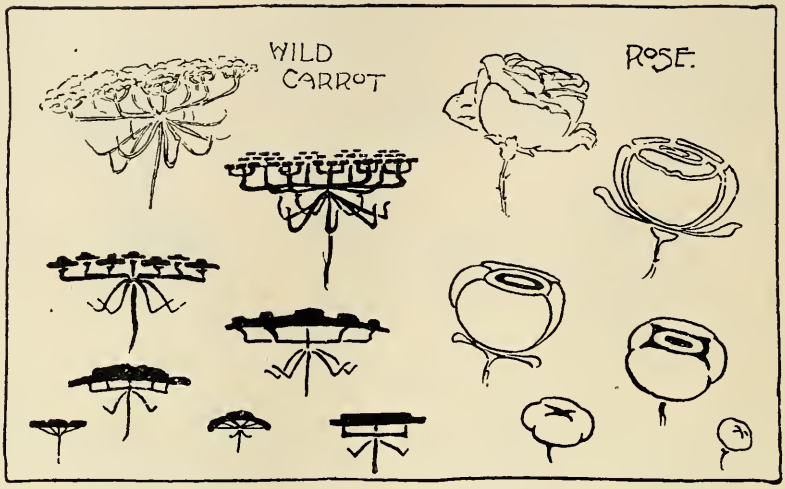


PLATE XXXV.

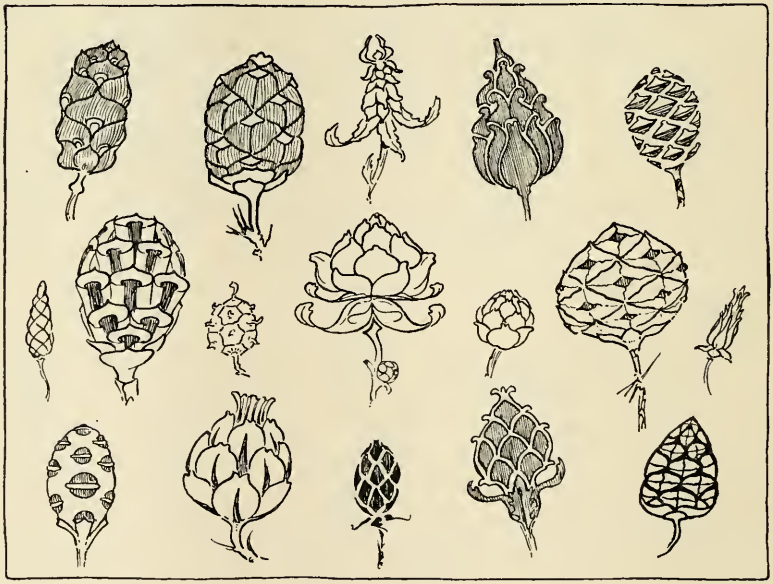


PLATE XXXVI.

Plate XXXIV shows the structural lines which underlie the drawing of a conventionalized bud. The bud is represented as one having four segments. These start from the stem end and sweep around the surface of the form to meet again at the upper end of the axis. In the completed drawing neither end of the axis is visible, and only short portions of the lines which divide the segments are shown. It is most important that these portions be true, both in position and curvature, otherwise the form itself will not present an appearance of roundness and solidity—in the language of the studio, it will not "exist." It will be unnecessary, as a rule, for the designer to map out all the structtural lines in developing complex foreshortened forms, but he must never forget to think them out. He must in his mental eye see the movements of lines which underlie the structure; he must think in terms of structure.

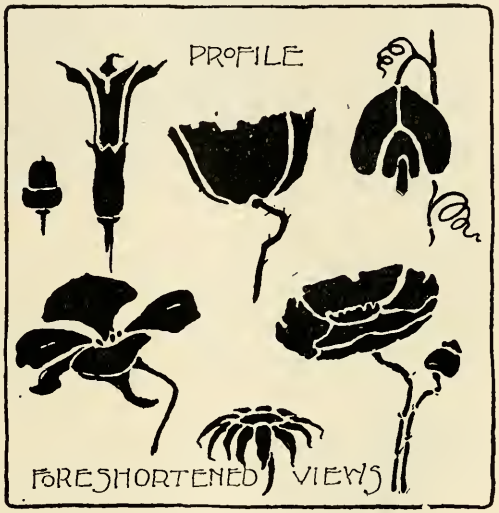


PLATE XXXVII.

SIMPLIFICATION.

For reasons which have been noted, natural forms cannot be directly used in design. The first step in conventionalization is to simplify them and emphasize their decorative features. Simplification is a process which seeks to reduce the complexity of the form by omitting details. It may be carried forward to a greater or less degree. In its development the least essential details (meaning here the least decorative), are the first to go, and as it is carried further, other elements are omitted, in the reverse order of their importance, until nothing more than a symbol of the form remains. (See Plate XXXV).

In any design, the question as to how far the elements are to be simplified, must be determined in part by the designer, and in part by the nature of the material to which the decoration is to be applied. Rules for simplification can scarcely be given. The knowledge is to be gained by an examination of many designs and by continued experimen-

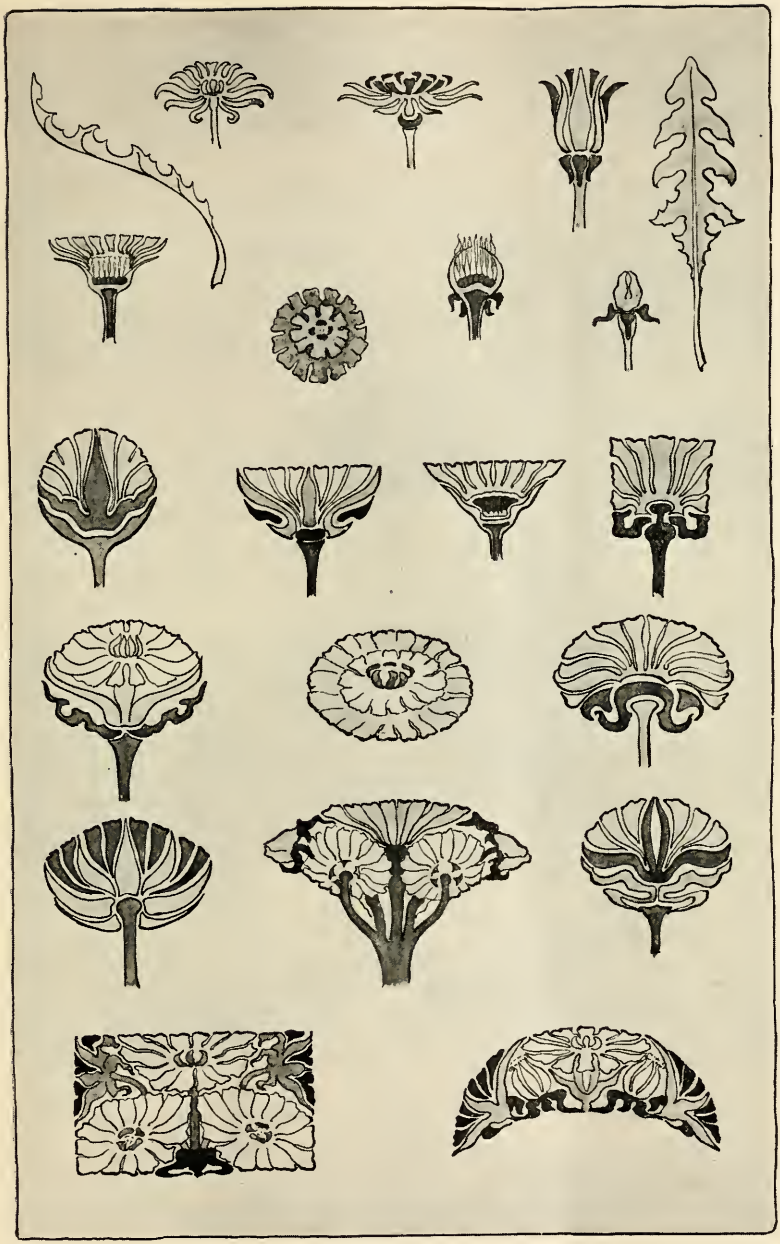
tation. As a process, it proceeds by a reduction of the complexity of the natural form until finally multiple parts become one. The compound flower with a hundred florets will in conventional form appear with but a score, and in high degrees of simplification, even these will disappear as separate elements and be shown as a single mass. (See Plate XXXVIII).

Designed by F. W. Goudy. FIG. II.

The more naturalistic the design the more detail will be retained and the fewer will be the liberties which may be taken with facts of growth. As has already been noted, the same degree of conventionalization should maintain through the pattern; leaves must not be simplified to a mere formal fret work, while flowers remain with their natural details but little altered. The rule of continuous growth must also be observed. Stems must not grow in contrary directions from main stalks, though the designer is at liberty to establish if he will more than one growth point within his pattern. In Fig. II. two such points will be observed.

FIG. 12.

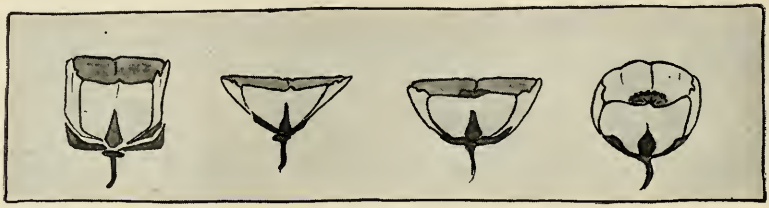
In studying conventionalization the student will be wise to begin by representing his forms in silhouette, showing in each case the structural elements dissected or separated, one from another. The flower or plant will then appear much as it would as a stencil with various parts of the structure divided by the ties which hold the stencil together (See Plate XXXVII. and Fig. 14). Fig. 12 shows a Japanese unit for a stencil design made in this manner. Examination of this will convince one that great freedom and beauty may be secured even in the silhouetted form.



Designed by Alice C. Eames. PLATE XXXVIII.

VARIATION

From the same complex form, various silhouetted units may be derived by carrying the dissection of the details further in one case than in another. Once familiar with this method of conventionalization, the designer



PALTE XXXIX.

should study the manner in which a unit derived from a natural form, may be changed by varying the treatment of its details. These changes may be made in line, or in mass; their number is infinite, limited only by the skill and ingenuity of the draughtsman.

A number of variations of one form are shown in Plate XXXVI.

PLATE XL.

They illustrate the pine cone as treated by different designers. In one or two of the drawings the naturalistic appearance of the form has been approximated, but others retain only traces of the original form and have, become little more than decorative shapes akin to those shown in Plate XXXI.

One series of units may thus be derived from a single aspect of a flower and an entirely different series from the same flower seen not in elevation but foreshortened. (See Plate XXXVIII). A single plant may thus give rise to a very large number of conventional units. Before proceeding further the student should make a series of such elements, developing them from some simple flower, as the buttercup or wild rose.

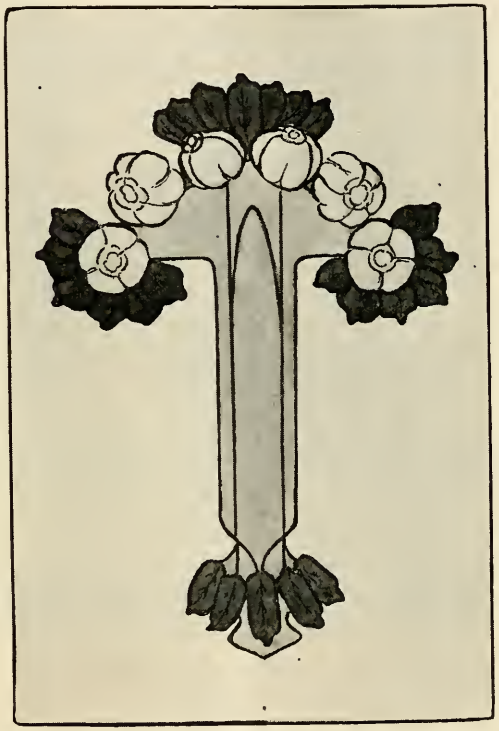


FIG. 13.

ADAPTATION.

The knowledge of how to conventionalize forms by simplifying and dissecting them is the first step in the application of these forms to design. After the student has learned to vary their treatment, it will be necessary for him to learn how to adapt them to spaces of various shapes and sizes. This is essential, as the masses which offer in design vary greatly in their dimensions, and are often of a shape which requires a change in the proportions of the form to be represented. To acquire skill in adaptation it will be necessary for the designer to experiment with different floral units, adapting each to different spaces (square, triangle, circle, semicircle, &c.) In not every case will it be possible to make a perfect adaption, but he should persevere, seeking by the use of the various elements of the flower to fit it to different spaces, while he retains so far as may be possible the spirit of the form. (See Plates XXXVIII and XXXIX).

Another elementary but important exercise is the arranging of the same flower in three or four different views, in the same geometric

space. This is shown in the treatment of the buttercup. Plate XL. (See also Plate XXXVIII.) Practice in this second form of adaptation will enable the student to secure considerable variety in a design, even where a number of the masses are of the same shape. (See Fig. 13.)

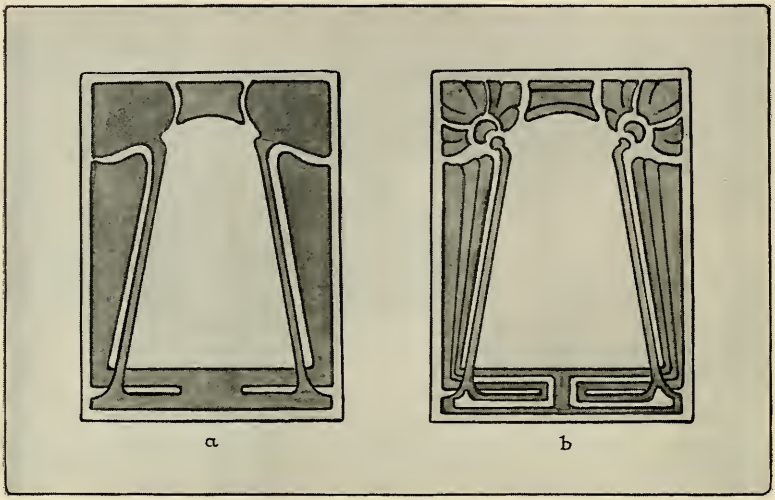


PLATE XLI.

METHODS OF FILLING MASSES WITH SUBJECT MATTER.

Turning now to Plate XLI, we see a mass arrangement carried to the point where its elements are ready for the introduction of subject matter. Into the corner space we may introduce any one of a score of flower forms, but the side space indicates that we must use leaf elements in which there is a strong vertical movement. We will therefore be wise to elect some very highly conventionalized material and develop this in a simple way.

In breaking up the abstract masses by the details of flower and leaf forms we must not forget that the qualities of simplicity and refinement, emphasized as necessary in the main elements of the design, are to be developed in every detail. The subdivision of the elements of the decorating mass must proceed with the same care which has been used in the development of the elements themselves, each line which helps to make up the conventional form, being considered from the standpoints, both of structure and of rhythm. The movements in the subject matter must in their way be related to the design as a whole. Such relations make for unity.

In the application of our conventional matter we may simply introduce lines into the masses which already offer, as has been done in the leaf forms, (b) Plate XLI, or we may develop the elements and subsequently

PLATE XLII.

separate them one from another just as we did in elaborating the original mass. Such separation is shown in the flower forms.

No rigid rules are to be framed, stating just how far the designer may go in thus creating subordinate elements in the form of subject

PLATE XLIII (a)

Designed by Emma F. Chaffin PLATE XLIII (b)

matter. He may go as far as his taste and judgment dictate. The masses of his design stand before him, and a host of natural forms are available to fill them. Both masses and natural forms are suggestive merely. If in adapting the latter to the former he finds it necessary to

break the masses up still more, he will do so. He will change outlines, combine and separate parts as far as may be necessary, remembering that the mass arrangement has been developed to serve and not restrict him in his work.

In the design referred to but a single flower was used to fill the corner; often a mass will offer which requires several conventional forms to fill it. These may be placed side by side, Plate XLII, (a) or may overlap one another (b) (See also Plate XXXVIII). Plate XLIII. shows above, a border which has been planned in mass and below the

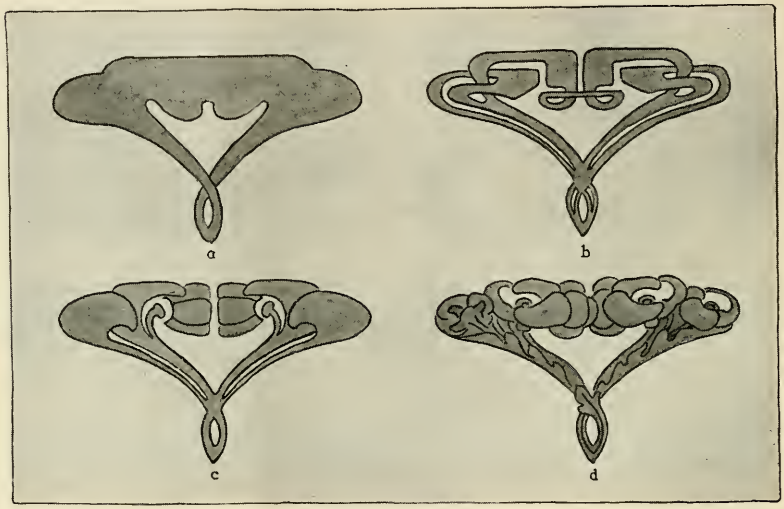


PLATE XLVI.

masses filled with subject matter without further subdivision. Plate XLIV. (d) shows a somewhat similiar arrangement in which the subject matter has been developed on bisymmetrical lines, but has had variety introduced in it by the overlapping of certain of the forms. This plate illustrates the manner in which a bisymmetrical stamp may be developed into abstract strap-like forms (b), into formal conventional matter (c), or into free conventional matter (d).

PRACTICAL EXERCISES.

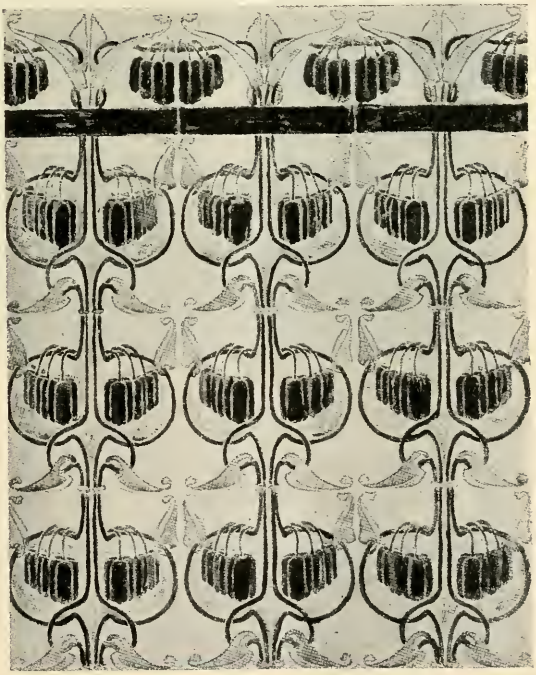
The student should now take several mass arrangements and translate each into subject matter, developing one design formally and another freely, as indicated in Plate XLIV. He will be wise to make a considerable number on the same mass arrangement as a basis, that his ingenuity may be put to the test in devising different solutions.

FIG. 14.

ALL-OVER PATTERNS.

The method which has been suggested is evidently of advantage in the development of simple applied designs, but some may question the possibility of utilizing it in the elaboration of designs for surface or all-over patterns. No reference has hitherto been made to these, but it is to be understood that they are to be carried out in precisely the same way that simpler designs are developed. The all-over design is one based upon a series of interlacing lines producing equal geometric spaces. These spaces may sometimes appear in the completed pattern but are frequently disguised by rhythmic lines connecting the masses of subject matter together and distracting attention from the geometric structure.

Simple patterns of this description may be made in the checkers produced by the square interlace, or more complex ones on the diamond



Designed by Louise Lessore FIG. 15.

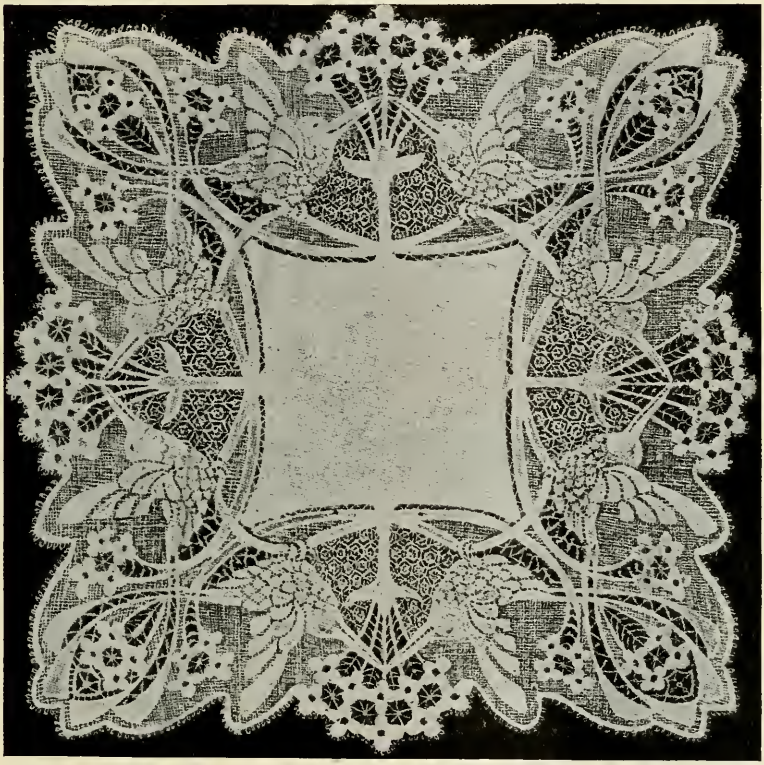
in its various shapes and sizes. Fig. 14 shows a pattern developed on a diamond underlay, in which the lines of the background have been replaced by conventional stem forms following the double ogee curve. Space does not offer in which to discuss the anatomy of surface patterns,

Japanese Velvet. FIG 16.

but it is plain to be seen that once given the geometric underlay one may proceed to develop on this any form of mass arrangement, whether the repeat be a square, (Fig. 15), triangle or diamond (Fig. 16). The development of complex all-over patterns in a satisfactory manner requires a high order of skill and a keen appreciation of the rhythmic values of related lines and masses. It should be one of the last forms of applied design approached by the student.

CONVENTIONALIZATION AS CONDITIONED BY MATERIAL

In all problems of conventionalization, one of the most important points to be borne in mind, is the nature of the material to which the design is to be applied. Forms appropriate to one material can rarely

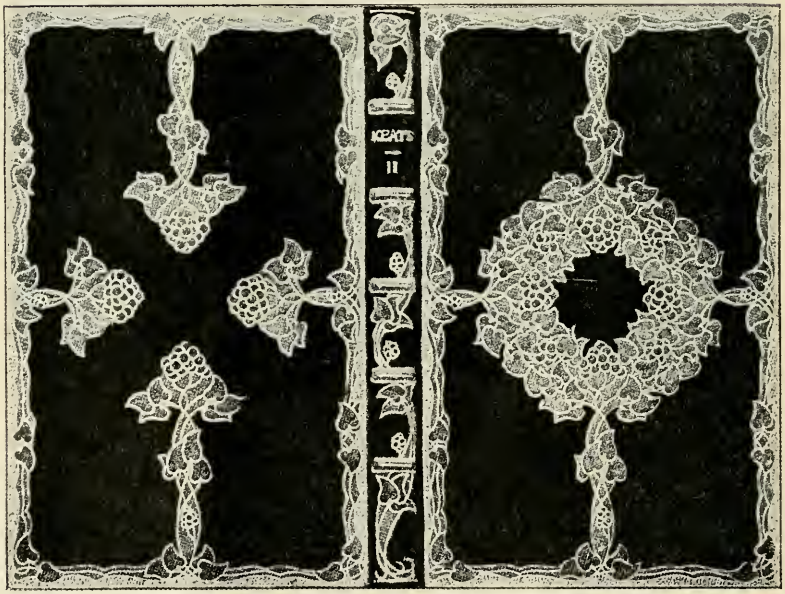


Designed by Lydia C. Hammett. FIG. 17[1]

be used without change, in designs to be applied to another. The nature of the material conditions the character of the design and determines to a considerable extent, the complexity of the elements which may be used. Multiplicity of detail gives the effect of great richness, (see Fig. 16 and 17) while the elimination of all small elements emphasizes the dignity of the design and makes it suitable for reproduction in refractory materials. (See Plate XLV.)

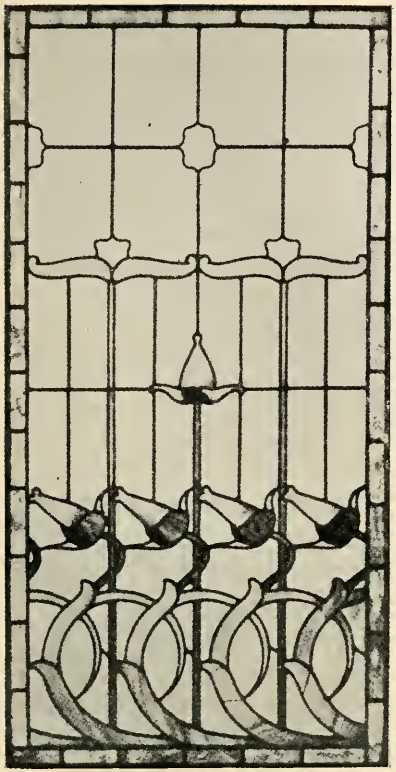
[1]From International Studio. Permission of John Lane Company.

Designed by A. J. Madeley. FIG. 18[1]



Alfred de Sauty. FIG. 19[1]

[1]From International Studio. Permission of John Lane Company.



Designed by W. J. Pearce. FIG. 20 [1]

skilled designer has turned natural forms to his purpose in different materials (See Fig. 18, 19, and 20). Only through such study, and actual experience with different media, can he come to know the degree of conventionalization best suited to translate Nature into pattern in any given material.

THE TEACHING OF DESIGN.

In the principles which have been outlined many suggestions have been given to one who would seek to become

But while the material in which the pattern is to appear governs the treatment of the conventional matter, the underlying principles of arrangement remain the same for all designs. Upon the beauty of the related masses all excellence depends and the student alive to this fact will look to see underlying the conventional elements of tile (Fig. 15), or textile, (Fig. 16), of lace, (Fig. 17), or brazen plate, (Plate XLV), those structural divisions which form the basis of the design. While he looks for these he should also scrutinize each applied design that comes before him to see the manner in which the

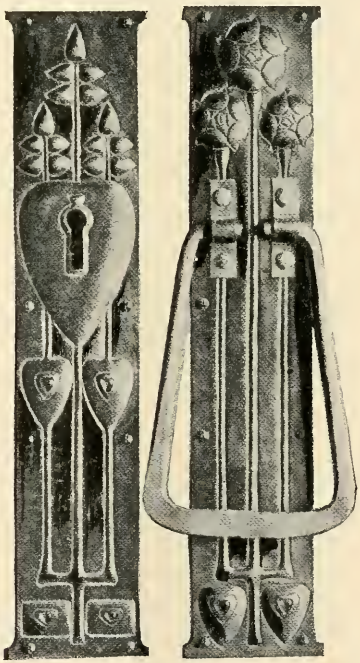


PLATE XLV. [1]

[1] From International Studio. Permission of John Lane Company.

a designer, but nothing has been said of the manner in which these principles may best be presented to the pupil of the elementary school age. In school work these principles form as reasonable basis for approach as in work outside the school. Pupils trained to follow them learn the virtues of simplicity in design, of structural soundness, and of beauty founded on the nice relations of mass to mass. But in the development of such principles in an elementary school course, certain devices and methods made necessary by the age of the pupils must be employed. These are not to be detailed in a word. They make another story.

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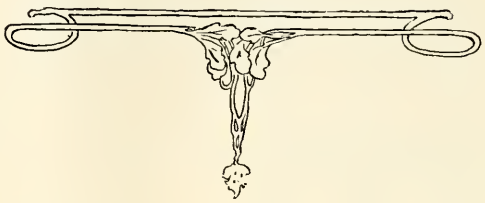


POTTERY IN THE PUBLIC SCHOOLS [1]

FORREST EMERSON MANN with drawings by BURTON A. MANN.

THERE is a growing interest in pottery as a medium for expression in the schoolroom. The yielding quality of clay and the slight expense connected with its use make it a desirable material for handwork. Moreover it fits in nicely with basketry and weaving, metal work, gardening and other school occupations. In the lower grade pottery has already been used successfully in connection with work on the sand-table, illustrating the life and handicrafts of primitive man, while work in geography and history have been given additional interest by reproducing characteristic forms, such as the Greek vase, the Roman lamp, Indian bowls and Japanese trays and ink-pots.

Pottery gives a purpose also for the elementary exercises in design and drawing introduced in the primary grades. Repeating borders and the simple division of space into panels are especially appropriate as decorations on pottery forms, and through work in pottery the origin of such patterns is often revealed to the student.

As a craft pottery was important with primitive man and his best expression is preserved for us in the bowls and vases fashioned by his hand. We are told that the first pieces were moulded inside the basket and that the term "Basketry the Mother of Pottery" is doubtless true to fact. In Fig. 1 the imprint of the basket given to this form by the maker, was a suggestion for future decorations, and from this technical source developed many of the zig-zag and cross-lines so characteristic of the potter's art.

[1] Copyright, 1905, Forrest Emerson Mann.

Above all things, the primitive man used common sense. His household utensils and implements of warfare were first of all well adapted to their uses; nothing was without a purpose. Moreover he had good ideas regarding the appropriateness in decoration, and some notion of space division and the fitting of lines and forms to fill the spaces intended to receive them. He also took into consideration the fact that certain shapes in pottery and basketry were capable of receiving one sort of decoration—as a repeating border encircling the neck, leaving the body plain—while another shape would seem to demand a larger pattern covering the body and gaining contrast by undecorated areas at the top and bottom. (Plate 1).

FIG. 1.

The study of the outgrowth of one art from another, the application of of motifs derived from nature and from the technical sources of knotting, tying and weaving has a value educationally; and much of the symbolism and fertility of invention displayed by the arts of primitive man may be repeated by the child when guided along natural channels of thought; thus giving a truer conception of art in its relation to industry.

The distinctive quality produced in fashioning pottery by hand after the manner of prehistoric peoples, added to the fact that it is the simplest, makes this method the most desirable for use in the elementary school. The "throwing" on the potter's wheel and the method of casting are two important means of construction better adapted for use in the high school where chemistry can be related to clay-working and glazing.

Clay is found in most parts of the country. Schools in localities where clay is plentiful and potteries abound, are able to introduce this branch of work and have the product fired and glazed at small cost. Some natural clays are not suitable for pottery; they may be either too plastic or too porous. The addition of fine sand will remedy these defects. When possible it is better to use a local clay, even if it is the ordinary flower-pot clay, burning to a red color, rather than go to any great expense in shipping material from a distance. The suitability of clay for pottery may be tested by sending samples to a ceramic laboratory, or by making small pieces and having them fired and glazed at a pottery, when a small kiln is not available. Prepared clay can, however, be readily obtained from potteries at the rate of one-half cent to five cents per pound. The Star Stoneware Company of Crooksville, Ohio furnishes a prepared clay which has been used with success in several

INDIAN-POTTERY
INCISED DECORATION
COILED
DECORATION
PAINTED WARE
COILED WARE

PLATE I.

schools. It is sold at the rate of ten dollars a ton or six dollars a half-ton. Smaller amounts can also be purchased. Two hundred pounds will furnish material for a great many problems in clay-working.

This particular clay comes soft enough to be kneaded readily. If partly dry and tough it should be allowed to dry thoroughly and then pulverized to a fine powder by pounding it on a thick bench or table with a heavy mallet. This powder is then sprinkled into water until it is thoroughly mixed and in a pasty condition. It is then spread out on a table and allowed to dry out until it thickens, when it is worked by kneading and shaped into bricks. These should be kept in a stout box or galvanized can or tub fitted with a tight cover. Holes pressed into the lumps with the thumbs will hold water sprinkled over the bricks, while damp cloths placed over all will keep the clay in good condition for working.

A room set apart for pottery work only, is most desirable. This should be furnished with running water, some ordinary tables and chairs, and shelves to hold the work. In the schoolroom where it is necessary to work at the desks, oilcloths may be placed over each for protection, and with care about dropping clay on the floor and spilling water the pottery lesson can be nicely carried out.

In the coiled work little else is needed besides the hands and the clay. With pitchers for water and bowls to hold it for each student, a potato knife, and boards eight inches square to build upon, the pupils are ready for the shaping. Ordinary slate roofing tiles are excellent for building the form upon as they do not absorb the moisture or warp as do the boards.

The simple bowl form with a generous opening and little or no shoulder is usually the best shape for the beginner.

To make the proper connection between the design and execution a lesson should be given on the form and decoration of bowls. Although the shape is an ordinary one it can be made far from common-place by studying its proportion and giving a fine curve to the contour. Examples or illustrations of Indian bowls and cooking pots would be helpful in this direction, showing as they usually do, convenient and useful shapes made beautiful by their proportions and variety of outline. The Japanese Saki cups show a wonderful fertility of invention in the numerous forms and decorations of the bowl shape.

After studying these examples, design several for yourself. Make them about four or five inches in diameter. Fold a piece of paper, six by two and one-half inches, on its shorter axis and cut with the shears

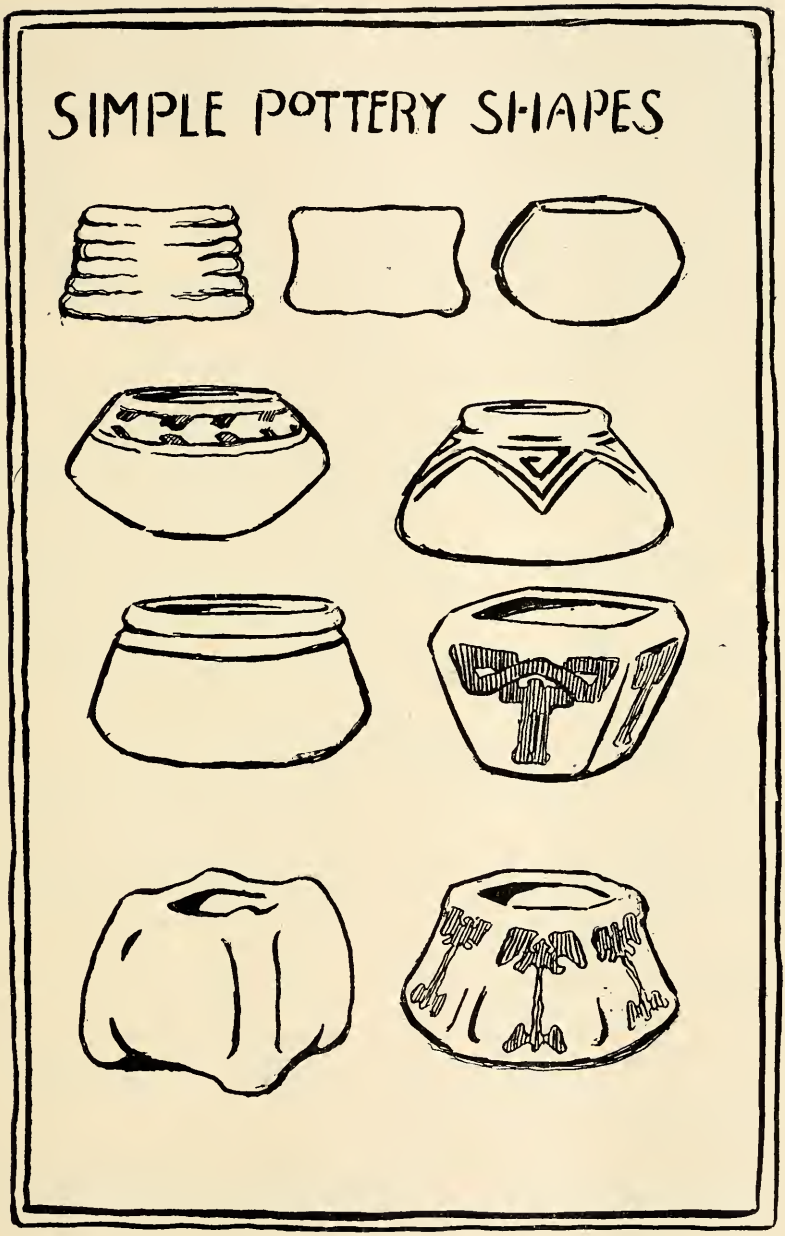


PLATE II.

an outline suitable for a bowl (Fig. 2). Open out the paper and it gives a symetrical pattern of the bowl. Make several of these and select the most satisfactory. This pattern serves as a guide in starting to work with the clay. Too often teachers and pupils alike work in an aimless way with nothing definite in view, the child being encouraged to work out whatever is in its mind. This usually results in grotesque and impracticable pieces bulged out here and pushed in there and scalloped around the edge giving, a ten-cent store quality to the piece. It is always safe to encourage a certain reserve in outline and form rather than strive for shapes which are "odd" or "unique."

FIG. 2.

Having a simple design at hand we are ready for the clay. Take a lump from the box as large as your two fists and knead it thoroughly for some time to remove air bubbles and to make it plastic. Add water if necessary until it is of the proper consistency. This will be learned after some experience. The clay should not be too sticky to roll out well, nor should it be hard enough for the rolls to crack in the coiling.

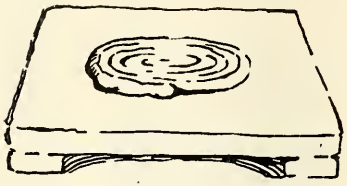


FIG. 3.

Different methods are used in starting to build a piece by hand. Small shapes can be fashioned from a single lump of clay by pressing a hole in the center and working it larger until the walls are of the required thickness. This is done by keeping the thumb inside and pressing the clay between it and the fingers. In the fifth and sixth grades this method is often advisable as a beginning, but the primitive way of coiling the shape with ropes of clay is more satisfactory as it gives the idea of growth and the shape is more easily controlled. One can start directly shaping the bottom by coiling around in a circle with ropes of clay (Fig. 3). Sometimes the bottom is made from one lump flattened with the hand or rolled smooth with an ordinary rolling pin. This latter method is used without fear of cracks appearing in the bottom as they sometimes do if the coils are not pressed firmly together.

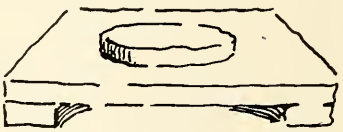


FIG. 4.

After rolling out the bottom to one-half inch in thickness, trim it to the necessary size for the base, using the knife (Fig. 4). This base is placed upon one of the boards or tiles and is now ready for the coils. These are made by rolling a small lump of clay on the table, using the fingers of both hands, and gradually drawing it out to about one-half inch in diameter (Fig. 5). The size of the piece determines the thickness of the coil. This should not be so thick as to give the piece a crude heavy appearance, nor yet so thin as to cause the walls to sag and pull the piece out of shape.

FIG. 5.

Starting with the base the coils are pressed upon the outer edge of the bottom, working usually from left to right, holding the coil in the right hand and pressing firmly with the thumb and forefinger of the left hand (Fig. 6). The board is also turned from right to left, so that one is always coiling on the further side of the piece. In this way the walls are built up spirally with the coils, always pressing them down with the thumb and leaving a flat surface for the next later to rest upon. The placing of the coils should be so controlled that the contour of the bowl or shape in mind is obtained. By keeping somewhat on the outer edge of the coil in building, the outer flare is produced (Fig. 7), and by working on the inner edge of the coil the wall may be brought in to as small an opening as is desired (Fig. 8). With clay of proper consistency and coils of uniform thickness, the walls are built up neatly and regularly to the form in mind.

FIG. 6.

In the low open bowl forms the coiling is done all at one time, after which they are carefully smoothed inside and out, working the knife or the fingers across the coils to make them adhere firmly, and effacing all signs of coiled construction (Fig. 9). In tall pieces it is impossible to do the coiling all at one time and it is necessary to set the piece aside in the open air to stiffen the walls before proceeding. This operation

may have to be repeated several times before the desired height is reached. It is also necessary to smooth the inside as one goes, building on a few inches and then working the coils together giving a finished appearance to the inside.

FIG. 7.

After the form is coiled to the desired shape and smoothed inside and out, if the walls are too thick in proportion to the size, or the shape unsatisfactory, the walls can be cut or scraped down with a knife to the desired thickness and contour. It is better however to so regulate the size of the coils and so control them that with careful building the piece seems to fall of its own accord into the required form. The cutting tends to destroy the living quality produced by the spiral growth of the coils. After the piece has stiffened a bit, but is still plastic, the shape can be altered by working it out from the inside bulging it around the base. In the same way the walls can be pressed or worked in from the outside, using the tips of the fingers dipped in water. Slight changes in the contour produced in this way add interest to forms otherwise mechanical and lifeless in line. Pottery pieces can be kept damp for any length of time by wrapping them in moist cloths and enclosing all in an oilcloth covering.

FIG. 8.

When the piece is quite firm it can be removed from the board. If it does not detach itself readily, cut it with a fine iron binding wire drawn close across the top of the board and beneath the base of the piece. The shape is now turned bottom side up, and any sharp edges

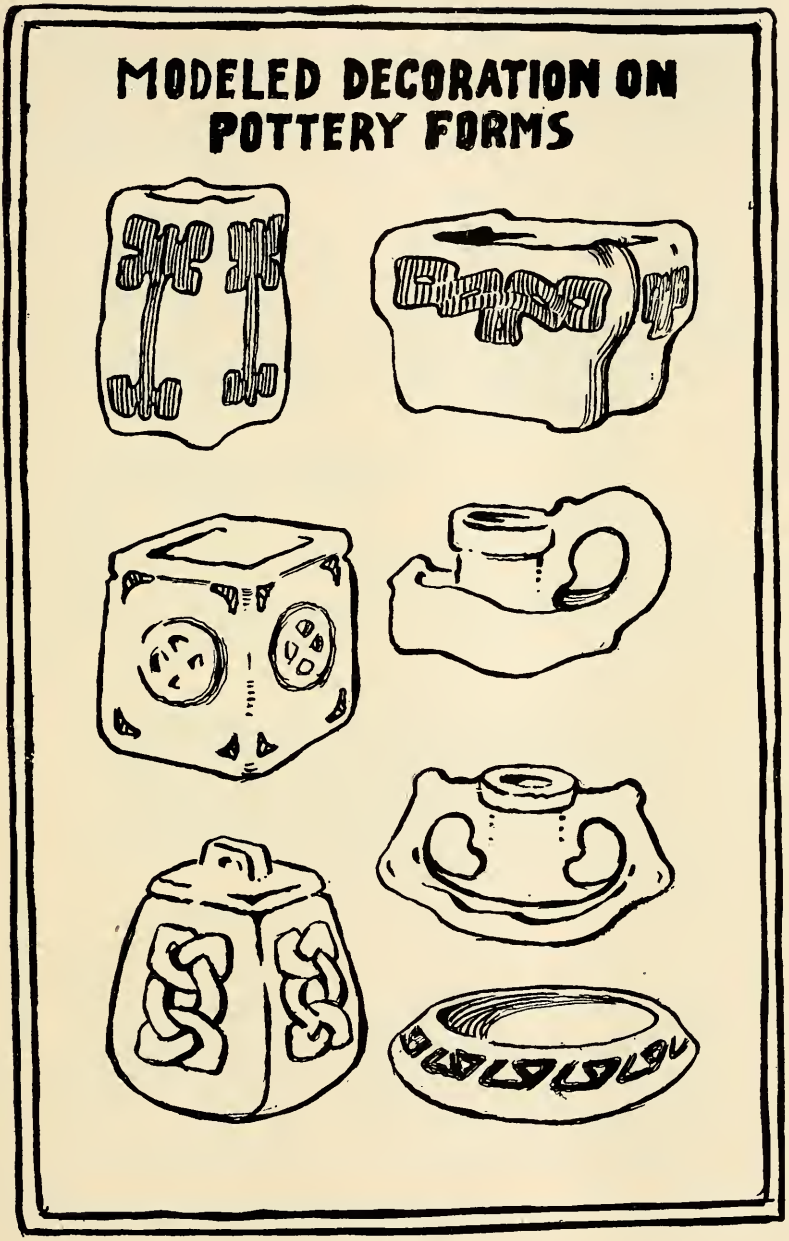


PLATE III.

are removed from the base. The piece has a more finished look if the bottom has a rim made by cutting out the center slightly to about one-fourth inch from the outer edge, and smoothing the bottom nicely with the fingers.

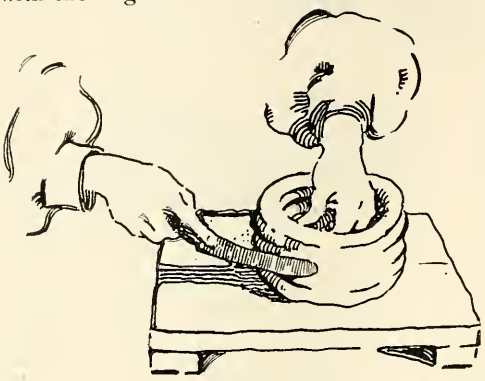
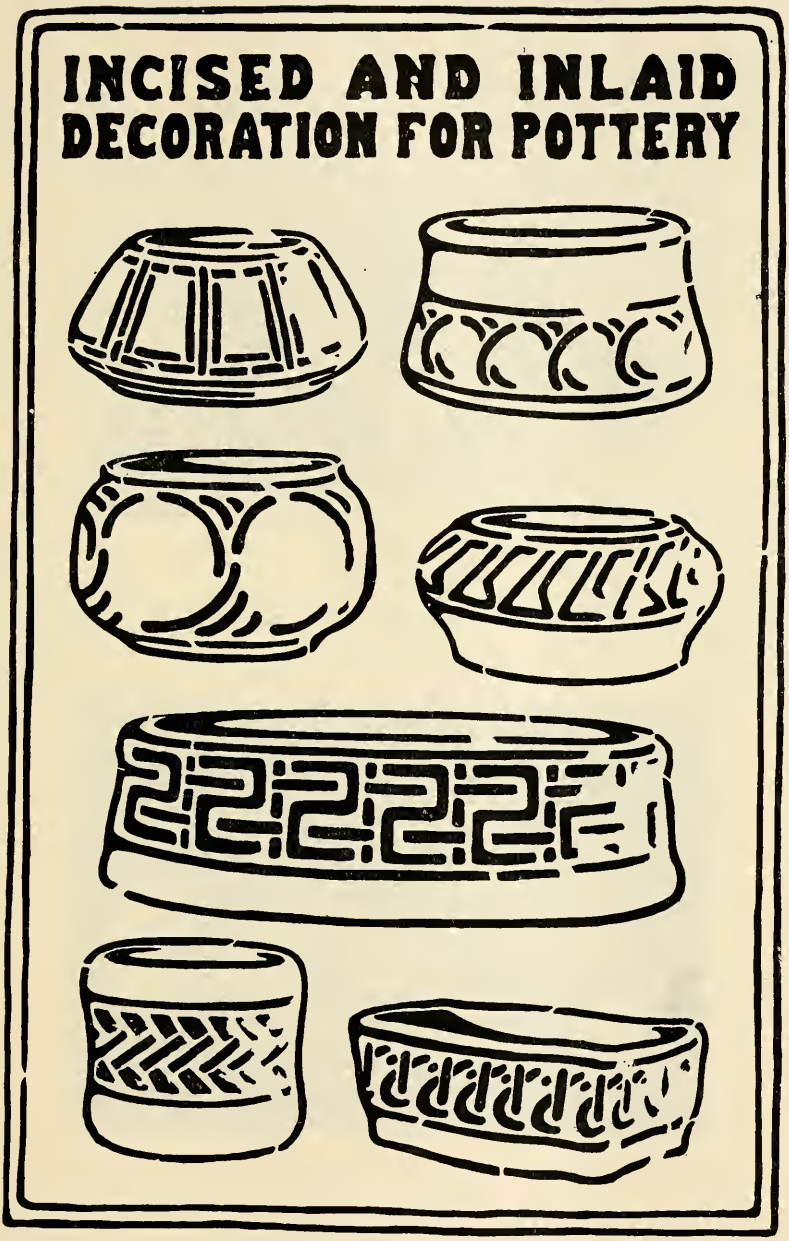


FIG. 9.

The decoration is now applied, and for this the incised outline is perhaps best adapted to the simple bowl forms (Plate II). Some of the line borders and panels worked out previously in the design lesson can here be applied. If the form has four, five or six sides, a line panel can be worked out on each side. If the form is round a repeating border at the top, bottom or through the center, is quite appropriate. Have this border in good proportion to the whole area, and do not divide the space too uniformly with horizontal lines. Decide how many times you wish to repeat the motif and divide the circumference into fourths, sixths or eighths, as the case may be. Perhaps the motif will fit well into a fourth. If so, take a strip of thin paper as wide as the border and place it around the form, marking the fourth of the circumference. Having this distance on the paper draw the motifs into the space. Now apply the strip again to the bowl, and with a little pressure go over the border with the pencil transferring the decoration from the paper to the clay, which is still soft enough to receive the impression. Repeat this operation four times, then take the nut-pick tool and deepen the lines, taking out the clay evenly and leaving a smooth incised line.

FIG. 10.

This tool is made from the ordinary steel nut-pick which sells for about thirty-five cents a dozen. The ends can be filed and blunted to the required shape, or, better still, the ends flattened on an anvil with a heavy hammer, and then put in a vise and filed to about three-sixteenths of an inch in width. Round the end and turn it over like a hook and smooth with emery paper (Fig. 10). Tools of different widths can be made in this way and will be found useful in all decorative work on pot-



ORIGINAL DESIGNS BY STUDENTS.

tery. With them the background of a border of any figure can be removed, leaving the pattern in low relief.

In unglazed ware a pleasing effect is produced by using stained clays for inlay work. This is done by coloring some clay with burnt

HAND-BUILT POTTERY BY MEMBERS OF THE WILLIAM MORRIS SOCIETY, COLUMBUS, OHIO.

umber or some other mineral color. Burnt umber is quite satisfactory and the clay should be stained to a light chocolate color. This stain

HAND-BUILT POTTERY BY MEMBERS OF THE ARTS AND CRAFTS SOCIETY, GRAND RAPIDS, MICH.

can be obtained in the form of powder at any paint store, and should be added dry to the clay when it is in a pulverized state. For small quan-

tities, however, it can be mixed with water and kneaded into the soft clay. This colored clay can be inlaid as a design.

When the pottery shape is quite firm but still moist, cut out either the pattern or the background, being careful to have the walls of the incisions cut straight down or even under-cut a bit. First outline the design with the point of a knife or a needle. Then remove the clay with the nut-pick tool to about one-eighth of an inch in depth. Now moisten these incisions slightly and press the colored clay into them with a knife as firmly as possible, then set the piece away for a few hours that the clays may become firm and united. The superfluous colored clay is then scraped away with the knife.

It is desirable in all pottery work to smooth the pieces before they are dry, using the fingers dipped in water, and working over the surface. This brings the fine clay to the outside and gives a certain texture to the piece that is distinctive of hand work.

A great many really useful objects can be made by the coiling process, such as flower-pots, ink-wells, pen-trays, candlesticks, envelope holders, nut bowls and rose jars (Plate III). Unglazed ware made from clay firing at a low temperature can be fired in an ordinary china kiln. It is also possible to pack the pieces in paper and sawdust and ship them to some pottery where they can be fired and glazed at a reasonable cost.

Methods of casting and wheel-work, together with firing and glazing will be described in later articles.

PRACTICAL AND EDUCATIONAL MANUAL TRAINING IN THE PUBLIC SCHOOLS.

FRED D. CRAWSHAW.

IT is not a difficult task to plan a course in handwork for boys and girls in the grades, which may be good busy work and possibly have a value in training the hand and eye and developing the child in new habits of accuracy and neatness, but such a course may not be good manual training. The best course in manual training must consider not only the training of the hand and the eye in some isolated occupation, but it must be a course which touches the life of the child in his work and play, in school and at home. It must also be a course which acts as an educational flux in joining one subject in the curriculum to another. It must tend to show the child the relationship between the regular school subjects and his outdoor life—his play at present and his possible work in the future. In short, it must be a course which makes him feel his importance as a living, working, social being. Such a course may be practical, and educational as well, and I venture to say that unless it is practical it will not be in the highest degree educational.

What then is practical manual training according to such a standard? First and foremost, it is a course in handwork dealing with elementary industrial processes which have a place in present industrial life, have had a place in the past, and probably will have in the future. Such a course will be practical from the standpoint of educational theory because it will allow and demand a correlation with geography, history, language, reading and arithmetic. It will be practical from the standpoint of the community because it will teach the child the elements of the occupations followed by members of the community.

In the second place, a practical course in manual training consists of problems in handwork in a material which the pupils can handle successfully and that the teacher understands and enjoys. Some courses in manual training have been designed which require the children to work in materials too difficult for them, and without any regard to the experience and ability of the teacher. The result in such cases may be to give the children a relaxation from the regular book work, but it does not insure growth in good habits, either of thought or action.

We sometimes hear it said that a consideration of technical processes in elementary manual training develops merely the physical or manual side of the child's nature and loses sight of his mental development. If we consider the *method* in our work to the extent of losing sight of the child and his interests—the material product and not the means—certainly this statement must have some ground for being made. On the other hand to allow the child to do a thing as he pleases, thinking he will readily discover a good method of work through his experiments, is neither good education nor good common sense. We demand the best books and the best methods of teaching arithmetic, language and geography. Why should we not do as much in manual training?

To show more clearly what I mean by practical and educational manual training let me give specific illustrations. In some schools where a large number of pupils are taught, and this is the condition under which work must be done in the average public school, it has been customary for the supervisor or teacher to plan in detail each exercise that the class must make in a given course. The material is selected by the teacher and each pupil in a class is required to make a certain thing at a certain time. Often the thing made is of no value to the maker after its completion; it is simply an exercise in methods of using certain tools. The course is designed to teach the child certain definite processes in hand work. In such a course the child may enter upon his work with considerable enthusiasm because he is doing something with his hands—and what child does not love to do things with his hands? Soon, however, the interest in the mere doing is gone, except for a few who may have a strong liking for the particular tools used or have exceptional ability to work in the particular material chosen. The result is that the class interest is lost because the child is not treated as a thinking, feeling individual, but merely as part of a system.

Now this sort of manual training may teach good methods of handling tools but it does not stimulate the best thought, it may make the pupil accurate in certain work, but it does not make him accurate in judgement; it does not strengthen his reasoning powers. Such manual training may make the pupil draw neat lines, handle the plane well or control the needle in making a particular stitch, but does it tend to make the child thoughtful and interested in drawing, woodworking or sewing? I think not. Why? Because the real child and his desires and ambitions have not been considered.

A second illustration: The supervisor or teacher does not plan his course before the school year opens; he puts his own judgment in the

background and waits for the child's demands, This is the question he asks on the first day of school, "Well, children, what shall we make this year?" The answer: "A play house of wood." Thus the work for the year is chosen, and down to the shop goes the class from the third or fourth grade. Without any instruction concerning the use of tools or the value of wood, without any knowledge of the building of a house, saws, planes, hammers and nails are used to mutilate and destroy valuable material. And what is the result? One of two things: Either the teacher finally makes the play house or the pupils make something they are dissatisfied with or even ashamed of.

This sort of manual training may develop a certain kind of individuality, a sort of self reliance, but it does not train in good habits mentally, morally or physically. I believe we will agree that neither of these illustrations is of a kind of manual training we want our children to have, yet in both we find good points. Let us take the good from each and use it in a third illustration.

The supervisor selects a material to be used in a certain grade because it is a suitable one in the community in which the school is placed, and because experience has shown that it may be used successfully by children of the age found in that grade.

He plans his course so far as the tool exercises or methods of manipulation are concerned, but he does not decide upon the particular thing to be made by each pupil. He leaves that to the good judgment of the class teacher and desires of the individual pupils. The classes meet and begin work with the understanding that certain things must be learned before they can do well what they wish to do, and with the further understanding that when the proper time comes they will be permitted to work out their individual plans. Each pupil learns to handle both material and tools in exercises which may or may not have a value in themselves when completed. While this is being done the language, geography, history and arithmetic are incidentally used to show the child what can be done in his manual work. When this elementary work is completed each child uses his new knowledge and new power in developing his own individual project under the supervision of his teacher. Now what is the result of this kind of manual training? Certainly this: Good habits of thought and action are formed. Proper methods of working with tools are learned. An interest in the thing being done is kept, and results which are worthy of the effort put forth are secured. Self-reliance and individuality are developed. The pupil becomes both a rational thinker and a careful doer. By such results practical and educational manual training may be tested.

THE BROOKLYN MANUAL-TRAINING HIGH SCHOOL.

EDWIN W. FOSTER.

THE old saying that "everything comes to him who waits —and works" is exemplified by the new building of the Brooklyn Manual Training High School.

It is doubtful if many schools have lived and thrived under such adverse—almost impossible—conditions as did this institution for eleven years. The completion of the new building early in the present year marked not only an epoch in the manual training work of Greater New York, but in a broader sense an important fact in the history of manual training. The pioneer stage is long past; infancy and adolecence are of yesterday and the work is now in the first flush and full vigor of young manhood.

That the work of the school is approved by the people may be judged from the fact that boards of trade in various parts of the Borough are

not suggesting, but *demanding* that Manual training schools be established in their neighborhoods.

The present building, facing Seventh Avenue covers the entire block from Fourth to Fifth Streets with a depth of 215 feet and is five stories high. The ground floor includes an auditorium seating 1530, gymnasium with all modern appurtenances including shower baths, lunch-rooms

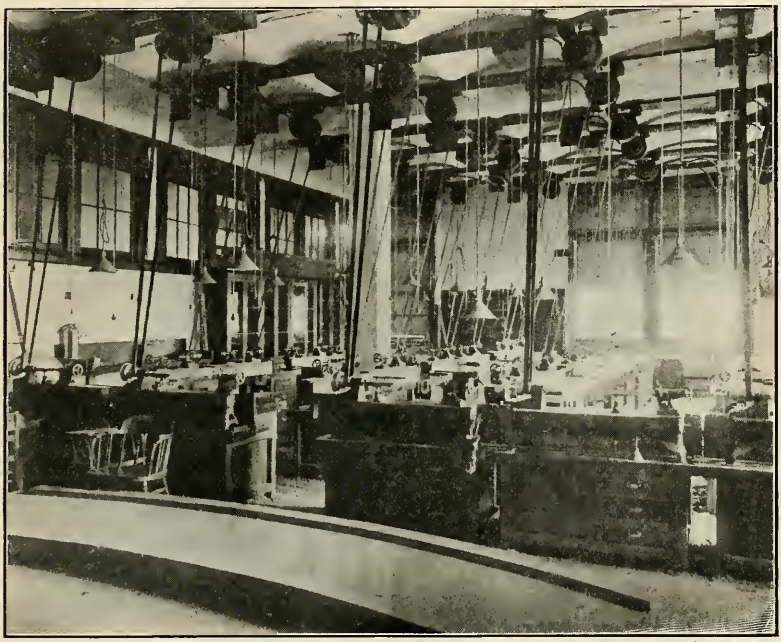
COOKING ROOM.

for both students and teachers, and the assay, steam and electrical testing laboratories. The general plan of the building is a hollow square, the space above the auditorium forming an open court giving direct light to the inner class rooms and top light to the auditorium. A continuous corridor runs around the square, class rooms and laboratories being arranged on both sides of the corridor.

Theoretically the first two grades, which contain the greater number of students, occupy the first two floors above the ground floor; but as a matter of fact so great is their number that they overflow into the floors above, which were designed to accomodate the six higher grades.

Again theoretically, each floor is complete in itself, being provided with the shops, laboratories, freehand and mechanical drawing rooms for

the grade intended for that floor, i.e., the first floor is equipped with shops, sewing rooms, etc., designed for the first grade work, the second floor for second grade work, and the third and fourth floors for the upper grade work; but so great has been the influx of new students—sixteen hundred within six months of the opening of the building—that the theory has been temporarily altered by the conditions.



PATTERN-MAKING ROOM.

Looking at the building vertically, the science lecture rooms and laboratories occupy the front of the building from foundation to roof, the shops in a similar manner the rear. This arrangement brings the forge shop and machine shop to the top floor, an advantageous location made possible by the steel and concrete construction of the entire building, which incidently has been made as near fireproof as modern engineering skill can accomplish.

The drawing rooms, one for mechanical and one for freehand, on each floor, are on the north side and the domestic science rooms on the south. The northwest corner rooms for mechanical drawing are balanced on the southwest corner by library, music and study rooms on the

first, second and upper floors respectively, the study rooms accomodating ninety students each. The class rooms, shops and laboratories are designed for thirty students each, the lockers for students being in the corridors which are spacious and floored with concrete. The lockers for each class are in charge of a student official known as the class captain, who locks and unlocks all doors by means of a brass lever, all lockers being closed promptly at 9 A. M., unlocked for the half hour nooning and again locked until the close of school at 2:30 P. M.

VENETIAN IRON AND SHEET METAL

The entire building is lighted by electricity and heated and ventilated by two systems known as the direct and indirect, the temperature of each room being regulated by a thermostat.

It is impossible within the limits of this article to describe the equipment for the many subjects taught. Many details which in a smaller building would be of little importance must here be systematized, as is proved by the fact that entering students have frequently gotten lost during their first week. The rooms are numbered in such a way that the number locates the room instantly; e.g. room number 327 means third floor, second corridor, and seventh room on that corridor—the first digit in each case giving the floor, the second the corridor and the last the room on that corridor.

The stairways are of the "double" variety so familiar in many New York schools, one being placed at each corner of the building, providing eight wide continuous stairways of stone, glass and steel from top to bottom of the structure, besides the main stairway leading from the main entrance to the Principal's office on the first floor.

The equipment of many of the rooms may strike the visitor as elaborate until the secondary purpose of the building is taken into account. This is the Evening Trade and Technical School opened for the first time in September and being incidentally the first free public Evening Trade School to be inaugurated by the Board of Education. It was assumed by the Board that the demand for instruction in the trades would be moderate, and provision was therefore made for three hundred and sixty students and twelve instructors appointed.

On the opening night the registration had reached sixteen hundred and later passed the two thousand mark. This unexpected demand made necessary the opening of many new classes not originally contemplated such as plumbing, electric wiring, printing, etc.

The adaptability of the building is illustrated in several of the evening classes, the plumbing and electric wiring being carried on in two of the first grade wood-working rooms, the benches being provided with wooden covers for the night work.

It is evident that the evening trade work has become a permanent factor in the life of the building and that the large expenditure which this exceptional equipment necessitated is fully justified by the results.

The following figures representing the cost of the essential details speak for themselves:

Plot	$ 92,450
General contract	488,000
Machinery	34,000
Mechanical laboratory	14,270
Shops, laboratories, etc.	48,700
Heating and ventilating	51,946
Plumbing	38,335
Gas	1,981
Furniture (general)	10,543
Shades and curtains	2,098
Book cases, etc.	4,324
Slate	4,500
Gym. apparatus	7,600
Auditorium chairs, etc.	6,435
Desks and seats (students')	7,320
Several smaller contracts bringing the total up to	850,000

EDITORIAL.

The Manual Arts in Rural Schools

One of the large educational problems now pressing for solution is how to provide adequate instruction in the manual arts in rural schools. The results of instruction in manual training and drawing in the city schools are leading the residents of rural districts to ask why they too should not receive the benefits of such instruction. In many such districts appreciation of good schools is just as keen as in the cities.

If in every state the instruction in drawing were as thorough and as completely organized as it is in the state of Massachusetts, the problem would seem comparatively simple—at least from the standpoint of organization. According to the state supervisor's recent report 97 per cent of the children in the entire state have the benefit of instruction by special teachers of drawing. In many cases, small towns have combined in the employment of a supervisor. The extension of such a system to include manual training would seem the rational solution of the present problem for that state, but in a state like Illinois, for example, where there is yet no state supervisor of drawing and where comparatively little attention is given to the subject outside of the cities, the problem is quite different.

It would seem at first thought that in Illinois the only way to get the manual arts into the schools would be through the regular teachers. Yet too much must not be expected of the rural school teacher. No teacher should attempt to give instruction in work he does not understand. If good results are to be obtained in the manual arts in rural schools the teachers in these schools must first be given instruction in the manual arts. As only a small proportion of these teachers have attended normal schools or high schools where drawing and manual training are taught we are forced to look to the next higher official, the county superintendent. As a rule he is not qualified to do such work. His best course is usually to secure an assistant who can give special attention to drawing and the constructive arts. At this point he is confronted with two problems: first, to secure funds for the assistant's salary, and second, to find a really qualified assistant. From testimonies that have come to us we conclude that the former is no more difficult than

the latter and that some districts have reached the point where they would be glad to pay the salary of a supervisor if it were reasonably sure that the increase in educational value would be proportional to the increase in expenditure. Judged from the unsentimental standpoint of common sense, the expenditure must be justified by manifest increase in practical power to earn a living.

The problems of finding qualified teachers and supervisors is the more fundamental and perhaps the more difficult. The chairman of the committee of the National Educational Association on "Industrial Education in Schools in Rural Communities" [1] has recently emphasized the fact that but very few teachers are now prepared to give instruction in the manual arts in rural schools. This is not surprising for the manual arts have been developed especially with reference to city conditions. The rural school problem is yet unsolved and it will remain so unless more of those who have received thorough preparation in the manual arts will study the problem at first hand, evolving new phases of work as they gain experience. It is clear to us that the burden of the rural school problem in the manual arts ought to rest most heavily not upon the school officials but upon the special teachers and supervisors already in the field. Rural school teachers can and will contribute something towards the solution of the problem, county superintendents can help, but for the present, the special teacher must be relied upon to point out the way, and to do this he must have learned the way in part, at least, through experience in the country schools themselves.

We are glad that beginnings have been made in this direction. One of these is reported in a pamphlet that has just come to us from the State of Georgia. It is entitled "Manual Training in Hancock County Schools —an Experiment in Education." From the General Education Board of New York this county received funds which made it possible to establish a shop center for the county and secure a special instructor from Teachers College who knew Southern institutions, rural school conditions, and the natural local materials. This work, now in its third year, is attracting the attention of other communities and much good is coming from it.

We repeat what we have said once before, [2] —that a long step forward would be taken if every state were to employ a competent supervisor of the manual arts. —*B.*

[1] The report of this Committee can be obtained from Dr. Irwin Shepard, Sec., Winona, Minn.; Price, 15 cents,

[2] Manual Training Magazine, Vol. V p 164.

The Council of Supervisors

If rumor be founded on fact, the treasurer of more than one association of the Arts is at this moment doing a deal of figuring that his balance sheet may show its balance on the right side; but while brows are being knit over figures that will not lie, one small society sees its financial secretary beaming with confidence in the face of printers bills of portentious size. This organization founded some years since as the Council of Supervisors of Manual Arts, stands to-day distinguished by an unusual record of professional acheivement. Though six years old it still has less than two score active members, but each of these stands pledged to engage in professional study that he may contribute to the volume which the organization annually publishes in the form of a Year Book. This book, unlike similar publications, is issued before instead of after, each annual meeting. At these gatherings no time is wasted in the reading of papers, but every moment is given over to reviewing work accomplished or in planning work to be done.

At the inception of the society it was gravely questioned whether it would be possible to secure members willing to submit their contributions to critical discussion by their associates, yet it was seen that on this point success would turn. If material of worth was to be secured, it was plain that one way to obtain it was to place each worker upon his metal —to oblige him to offer his contribution so well thought out and fitly phrased that he would, in the language of the day, be willing "to stand for it," in the face of criticism.

Experience has justified the belief that such members were to be found, and the professional pride of those who have come together, added to their determination to work in harmony that all might profit, has served to temper resolution to bear criticism without demur. However sharp the discussions within the organization, to the world at large it presents an untroubled front, with members enthusiastic in their commendation of the helpful nature of its meetings. With the year book printed and in hand some weeks before the annual gatherings, the latter see programs quite different from those of other associations. The desultory "discussions" of "read papers" find in their stead active debates upon the specific recommendations of the writers of "the book," while the usual "addresses"—with their jokes and generalities, are replaced by carefully written chapters—often extended monographs—on complex and difficult phases of teaching and supervision.

As treasurer of an organization publishing transactions compiled

with such care, it's small wonder that the Council's bursar bears a smile which bespeaks a mind at ease. Checks from many quarters flow his way, for to the worth of such volumes the teaching public is not blind. It has found the matter in them too important to be ignored, —matter not to be gotten from text books nor the current prints, but dug by some of the best known teachers of the arts, from the mines of experience, and smelted and minted with much labor and the heat of midnight oil. Valuable to their fellow members, it has been sought by many others, and has found place in the working libraries of teachers of the arts the country over.

It might appear at first glance that an organization doing work so significant could well afford to expand its membership and include many in its annual gatherings. Second thoughts however will show how unwise such action would be. The Council exists to do certain work. Its chief function is to produce each year its book, filled with contributions worthy the name professional. To achieve any measure of success, its work must be intimate and personal, its members must come into close communion and submit to criticism, friendly but searching. A limit is thus placed upon size while the aim remains, quality in product. But while such product must perforce be the work of a few, as a serious and dignified contribution to the literature of the profession it desevers well at the hands of the many. In a way, the Council's yearly book is not its own, but is representative of the craft. As a professional piece of work it does that body no mean credit. —*H.*

Prodding is a weariness to prodder and proddee. The man of initiative, needs no prod.

THE following significant paragraph is quoted from the latest report of the U. S. Commissioner of Education: "There are 587 cities in the United States having 8,000 inhabitants and over. In 322 of these cities manual-training is taught in some of the grades of the public schools. In 1890 only 37 city school systems included manual-training in the list of subjects of instruction. In 1894 the number increased to 95, in 1896 to 121, in 1898 to 146, in 1900 to 169, in 1901 to 232, in 1902 to 270, and in 1903 the number has increased to 322."

Manifold attractions draw a boy out of school: the Arts hold him in. They are the best truant officers a school system can employ.

ASSOCIATIONS

SCHOOL CRAFTS CLUB.

The School Crafts Club held its first stated meeting of the season, with a good attendance, at the Hotel St. Andrew, Nov. 10th, 1905. Nine new members were elected.

Mr. Noyes, president of the club, in a brief address, spoke of the evolution of manual training. Early in its history, in Sweden, the main causes of its vitality were two—the desire to stem the tide of migration from country to city, and the recognition of its educational value. The kitchen was at that time a center around which the interests of the people gathered. Thus the things made in the sloyd schools were articles for common use, and generally plain and unadorned. With the rise of the factory system and the consequent removal of the field of labor from the home workshop, the sitting room became the home center. The home is no longer a working place, but a resting place, from which men go out to work. So, decorated articles suitable for furnishing the sitting room or parlor became of greater interest to the school boy or girl, and therefore more appropriate as exercises for the school workshop. But the shifting of the center of interest did not stop there. In the latest phase of the movement we find the schools looking out beyond the home and adapting their work to the study of the industries of the world and the great social forces of our time.

Cheshire L. Boone, chairman of the evening, in introducing Walter M. Mohr, who was to speak on "The Manual Training of Germany", alluded to the necessity of surveying the whole field of the school arts and seeing our own work in relation to that of foreign countries.

In reply to a question by Professor Richards, Mr. Mohr said that in some towns the manual training schools were supported by the community. Generally they had been subsidized by individuals.

In regard to cheapness of equipment—schools being fitted up for about $150—it was explained that the work was done in the class-rooms, desks being converted into work benches.

THE RELATION BETWEEN THE SHOP AND DRAWING ROOM

was the subject of a talk by Harold H. Brown, whose remarks were substantially as follows:

One of the chief facts taught by William Morris was the hopeless lack of intelligent co-operation between those who design, those who make and those who buy. One aim of the manual-training high school should be to remedy this condition by developing each student along the lines which produced the master craftsmen of the great periods of history, with whom to have made a thing meant not only to have manipulated the material but to have conceived its form and decoration as well, so that the completed object was, verily, the child of its maker.

While this ideal may be accepted as an attractive theory, professional jealousies, narrow views, petrified programs, not to mention laziness, have in the past years

and in many schools prevented any effort being made toward a system of instruction other than the isolated "course," the pride of each instructor, guaranteed to stand alone, and as unrelated to any other course as a Florida orange to an iceberg.

Surely if any two courses or departments should be interdependent in a technical high school those of drawing and shopwork should be first thought of.

While it is too much to require every drawing to have relation to shopwork there can be a vast deal more of it than there is, with just as much value from the artistic point of view. As snappy a pencil drawing can be made in light and shade from a shop tool as from a Japanese lantern or teapot with more direct good to the boy frequently. Advanced students should be sent over the building to make large perspective sketches of portions of the shop, with such benches, machines and furniture as may accidently be in the chosen view.

Not a problem in the shop should be dealt out to the boys without consideration having been given to it in the school studio, always, if possible, by the students themselves, with a view to refinements of proportions, form and possible ultimate decoration. Finished shop products should be used as much as possible as models in the freehand drawing room. As to possible problems for the shop, forty centuries of history, each with its ideas in arts and industries, lie ready for our searching. It seems strange that nothing more spirited or beautiful can be found if such a field were really gone over than some of the hideous models inflicted on the youth of this and other lands. To some teachers the lines of Gray's Elegy apply:

> "Knowledge to their eyes her ample page
> Rich with the spoils of time did ne'er unroll."

Instead of trivial toys that are not infrequently made in the shop, reproductions of vehicles, weapons and appliances of history could be made, to be later used with great benefit in history and English work, or in the studio. Simple forms from historical architecture or furniture could be adapted to the turning shop. Egyptian, Greek and Medieval pottery forms are full of inspiration to an open minded man with a lathe.

To the question, how may such ends be attained, I would answer, by regular mutual conferences between the departments of drawing and shopwork. The principal of the school should be an active participant in these conferences and should see that the programs arrived at are really carried out.

Dr. Haney strongly endorsed Mr. Brown's plea for co-operation between the drawing room and workshop. When the two departments are interested in each other and are working with the same end in view a great moral force has been established. This is the plan now in operation in the schools of Manhattan and the Bronx. The removal of the drawing to the workshop would operate against the solidarity of the school.

Apropos of this discussion several prominent members of the Club spoke of the probable union between the Eastern Manual Training Association and the Eastern Art Teachers' Association, urging those who had not already done so to enroll as members of the association directly representing their professional interests.

—W. F. VROOM.

A host of attractions stand ready to draw a boy out of school; the arts hold him in. They are the best truant officers a school system can employ.

MANUAL TRAINING WITHOUT SPECIAL EQUIPMENT.

We are glad to be able to publish the following timely discussion by M. W. Murray, Supervisor of Manual Training, Springfield, Mass. This was presented at one of the sessions of the Massachusetts State Teachers Association, November 26, 1905, immediately following a paper read by Walter Sargent, State Supervisor of Drawing.—EDITOR.

It is a pleasure to notice that the argument of many advocates of manual training in the past, that the chores on the farm provide the best kind of manual training, has not been advanced this afternoon. While it is undoubtedly true that the country boy has an opportunity to develop a body which can stand the strain upon it in later life, I have no sympathy with those who claim that milking, sawing and splitting wood, picking up stones, etc., are the best forms of manual training.

I take it for granted that we all accept the fact that when a manual exercise is mastered to such an extent that it becomes a mechanical operation, it loses its educational value. Furthermore, to develop accurate motor ideas, we must have correspondingly accurate muscular movements. If we grant these facts, we must admit that such work as milking, sawing and splitting wood have no place in the manual training course.

Dr. Balliet tells us that "it requires less skill to grasp the handle of an ax, using all the muscles of the hand and arm, and chop wood than to seize a penholder by means of two fingers and the thumb and perform the act of writing. What we commonly call unskilled labor involves large groups of muscles and mainly fundamental muscles with their coarser adjustments, while skilled labor involves smaller groups of accessory muscles with finer adjustments. Unskilled labor develops few and crude motor ideas; skilled labor, on the other hand, develops accurate motor sensations and ideas and fine co-ordinations of muscular movement. This enables us to determine what tools ought to be used in manual-training work."

In our enthusiasm to introduce this subject, we should not lose sight of the fact "that the mere performance of handwork upon material in school does not constitute manual training." There is a danger, even among good teachers, of looking at the object turned out as the end, while in theory they regard it as a means merely.

Above the play stage, this work should be as thoroughly and systematically taught as any other school subject. When carried on by the regular teacher, it should so far as possible. be a part of the regular work and be based upon it. If it is to be a success, it must not be an additional burden to the teacher, but should tend to put life into the other work.

I

The different kinds of work can be classified under three heads; first that which requires very little or no equipment. In this class, clay modeling and pottery making present a field in which comparatively little has been done. It is perfectly feasible to make pottery in school, including the designing, modeling and the planning and building of a kiln in which to fire it. Such work is being successfully done by Mr. C. L. Boone, Supervisor of Drawing in Mountclair, N. J.

Basketry is a form of manual training in which much can be done to advantage. The work which we have done in Springfield has been mainly with the grammar preparatory classes where the regular work is largely individual. We have seven grammar preparatory classes made up of pupils who are backward in their school

work. The number in each class is limited to twenty so that they can be fitted by individual instruction to go back into the fourth, fifth and sometimes the sixth grade.

One class is made up of mentally deficient children and the number is limited to fifteen. The pupils make their designs and start the work in the manual training time; then when they have finished any regular task, they are allowed to work on their baskets until the teacher can assign another lesson. This not only helps the teacher, but proves an incentive to finish their regular work. In the winter months, the pupils take their work home, which tends to keep them off the street, and in many cases, the parents have taken up the work with them. A teacher recently told me that she did not see how she could teach her school without the manual training. (Other forms of manual training carried on in the grammar preparatory rooms are bench-work, one to four benches in each room — cord-work. cardboard work, brush-making and rug-weaving; also chair-caning.)

There are many different exercises in the knotting of cords which can be used in the making of string bags, hammocks and school bags and a limited amount of work can be done in chair-caning and rush-seating, the pupils bringing articles from home to repair. Rushes can be collected and dried for use, thus using local material and helping to revive an art which is fast becoming lost. The old-fashioned hooked-in rugs offer infinite possibilities in design and can be made on the roughest kind of frame. It is possible to fit up and use old looms which are found in almost every country town. On these, rugs, hangings and table-covers, especially rugs, can be woven. A limited amount of work in brush-making can also be done.

II.

The second class of work is that which can be done with a small amount of equipment which may be furnished by the pupils or the school. In this class, cardboard work should be placed first. By this, I do not mean the making of all sorts of articles of thin cardboard, none of which have any real worth, but would suggest work along the line of what is being done in Germany where things of real use and beauty are made. The thin cardboard work will do very well for the primary grades, but for the intermediate grades, we should have the latter sort of work.

Where benchwork cannot be taught, knifework or whittling can be used to advantage. It is possible, if not always practical to make almost anything with a knife. Work in leather can be done with a few simple tools and in the country school, this could well be applied to the mending of harnesses and shoes. Venetian iron work has been used very extensively, I suppose because it is something in which the manual exercises can be mastered in a few minutes and consequently amounts to almost nothing.

III.

Under the last head, I have included both the work which can be done at home and that which can be done in school if a few simple tools are obtained. I think that it would be possible to secure these tools by making and selling some of the things which I have already mentioned, such as baskets and rugs and by caning chairs.

It is possible to build and equip a bench in a country school where boys may work in their spare time, making simple pieces of science apparatus, flower presses, and other things used in connection with the school work. Boys will do these things

of themselves if they are given an opportunity and I feel that this work is rich in possibilities. I look back with pleasure to my start in manual training which was brought about in just this way.

In the line of printing, we can make use of the presses owned by the boys. (At the present time, some of the classes in Springfield are working on this subject. They are looking up the whole matter of printing, "Ancient Writing Materials," "The Earliest Books," "The Invention of the Printing-Press," etc, The pupils will write on these subjects as part of their regular school work. A cover is to be designed in the drawing class and a woodcut made by each pupil; then the cover is to be printed. Great interest is being shown by every one concerned.)

Electricity is a subject in which almost every boy is interested and it is not only surprising but instructive to see some of the things which a boy will make. (A good working telegraph was shown which was made chiefly with a jack-knife and hammer.)

If we could have teachers of ability, there would be little difficulty in introducing manual training into all our schools for such teachers would be sure to secure equipment. The work, however, will in most cases, have to be carried on by the grade teachers who have had very little of this work in their normal-school courses, and that of such a quality that it is of little use. I have yet to meet a graduate of our normal schools who has any very clear idea of what manual training is and the place which it should occupy in school work. In this, as in other things, the teacher is the most important factor, and if we cannot have special teachers, we must have more and better work done in the normal schools or have specialists to instruct the teachers in a group of towns. These teachers should receive extra remuneration for doing the extra work.

When the people of a community are made to see the value of manual training, I am sure that they will contribute heartily to its support. This state should do at least as much as New Jersey and contribute an amount equal to that raised by any city or town between the sums of $500 and $5000. Massachusetts would probably do this if the towns which need money to introduce this work would make their wants known. What the state needs is a supervisor who can do for this work what Mr. Bailey has done and what Mr. Sargent is now doing for the drawing.

CURRENT ITEMS.

CLINTON S. VANDEUSEN.

The department of superintendence of the National Educational Association will hold its next meeting in Louisville, Ky., February 27 to March 1 inclusive.

PLANS for the program of the meeting of the Western Drawing and Manual Training Association, which is to be held at the School of Education of the University of Chicago in April, are progressing nicely and an interesting and profitable meeting is assured.

THE next annual meeting of the National Educational Association will be held in San Francisco, Cal., July 9-13, 1906. Very favorable privileges are being granted by the railroads and plans are already being arranged for extending to those attending the convention, hospitality characteristic of California.

THE ILLINOIS MANUAL ARTS ASSOCIATION is maturing plans for its third annual meeting at the University of Illinois, Feb. 16 and 17. Professors Frederick and Perry of the University are making the local arrangements, and they assure the Association of a warm welcome. Most of the day Friday will be spent in visiting the several departments of the University including the new shops, and inspecting such exhibits as may be brought by members of the Association. As previously announced the executive committee has secured Superintendent W. H. Hatch of Oak Park to speak at the banquet on Friday evening. A rich program of practical topics has been prepared for the Saturday morning session.

THE DRAWING AND MANUAL TRAINING TEACHERS' ASSOCIATION of California had a most interesting and profitable meeting in conjunction with the California State Teachers' Association, held at Berkley during the Christmas vacation.

THE manual-training committee of the Business Men's Club of Cincinnati has recently printed a very interesting and significant report. After commending the board of education in establishing five manual-training centers for grammar-grade work and outlining what is already being done, the committee recommended the adoption of the following resolutions:

(1) "That courses of industrial education in the intermediate schools of Cincinnati be extended to the sixth grade.

(2) That three hours per week in the sixth and seventh grades and five hours per week in the eighth grade be devoted to manual training and domestic science in place of one and one-half hours as now.

(3) That in the eighth grade, shopwork in sheet-metal be added.

(4) That the plans for the new schools make more adequate provision for the accommodation of pupils in manual training and domestic science.

(5) That there be no delay in the erection of the new high school, and that provision be made therein, and at Woodward and Walnut Hills High Schools for industrial and commercial courses.

(6) That the board of education of Cincinnati and its officers and superinten-

dent and the superintendents of manual training, are deserving the highest praise for their zeal and efforts in the great forward movement in the cause of industrial education."

"INDUSTRIAL ART" is the title of a booklet recently published by the committee on education of the Illinois Federation of Women's Clubs of which Mrs. George C. Sikes of Chicago is the chairman. The purpose of the booklet is to give information concerning inexpensive kinds of handwork and to suggest how the introduction of manual training may be brought about through the influence of the women's clubs throughout the state. Among the illustrations of successful beginnings we noticed the following which is fairly typical of what is going on in many towns in the state.

"Princeton. A room was provided by the school board and a manual-training equipment costing about $375 was furnished by the Woman's Club. The money was raised by "market days" (selling home-made eatables), by giving dinners, and by a kindergarten entertainment. Work is offered to the sixth and seventh grades, and the fifth will soon be included. The superintendent gives the instruction, for which he receives no extra pay."

JAMES R. FORDEN, formerly at the State Normal School, River Falls, Wis., is now in charge of the manual-training work at the Montana State Normal College. Mr. Forden is a graduate of the Illinois Normal University and Columbia University.

W. MORRIS JONES, of Bloomington, has been employed to organize and take charge of manual training in the grammar grades of the East St. Louis public schools the work beginning November 1st. Mr. Jones completed the freshman year in the mechanical engineering course at the University of Illinois and has had one year of special work at the Illinois State Normal University.

HOWARD B. BRUNDAGE, a graduate of Teachers College, and recently a teacher of manual training in Hartford, Conn., is now in charge of the manual-training work in the elementary schools of Menomonie, Wis.

THE board of education of Chicago is making an effort to provide instiuction in manual-training for the 280,000 pupils in the public schools of the city. There are now 138 centers in which it is taught, five of which were opened this fall and were established as a gift from R. T. Crane. Two new manual-training high schools also have been opened this fall; one is in the old South Division High School building corner of Wabash Ave. and Twenty-sixth St. and the other in the old Hoyne School, Illinois and Cass streets, both of which have been fitted up with equipment for the first year's course.

AFTER six years of development in manual-training work in Detroit, Mich. there are twenty-nine especially equipped rooms and twenty-four special teachers in the department. The new developments this year are courses in three high schools and constructive work in the first grade. At present the courses in the High schools include only woodworking branches but their popularity aud additions to the high school buildings insure the extension to other lines of work next year. The instruction in each subject is divided into a technical course preparing directly for the School of Engineering of the University of Michigan and a more general course for students desiring to continue this work in the high school.

A department of pottery has been opened at the Hackley Manual Training School at Muskegon, Mich. and a very complete equipment installed. The depart-

ment is in charge of R. L. Park. C. T. Cotter has charge of the mechanical drawing in the same school and Miss Gertrude Tuttle has been appointed teacher of domestic science.

Channing W. Gilson, formerly instructor in the Eads Ave., Training School of St. Louis, succeeds Mr. Kent as supervisor of manual training at Rock Island, Ill. and considerable progress is being made in the extension of the work there. Three centers are being equipped for 7th and 8th grade work and two more will be added next year. Knife-work is also to be carried on in the 5th and 6th grades.

C. B. Connelly, formerly Supervisor of Industrial Schools of Allegheny has an appointment in the Carnegie Technical Schools at Pittsburg. His place at Allegheny has been filled by Joseph M. Speer.

This year's work of the Boston Manual Training Club promises to be very interesting and profitable. A printed report of its work is published monthly and its rapidly increasing membership now numbers over fifty. The officers for this year are: President, Joseph Sandberg; vice-president, Joseph A. Frizzell; secretary, Richard Benson; treasurer, Frank M. Leavitt; librarian, Francis L. Bain.

The town of Florence, Mass. has been fortunate in having two citizens who have endowed a kindergarten, and established schools of domestic art, domestic science, and this year a school of manual training. Frank P. Lane is director of manual training. Both day and evening classes have been opened in woodworking and courses in weaving and metalwork are also announced.

New York City.

Collected by A. W. Garritt.

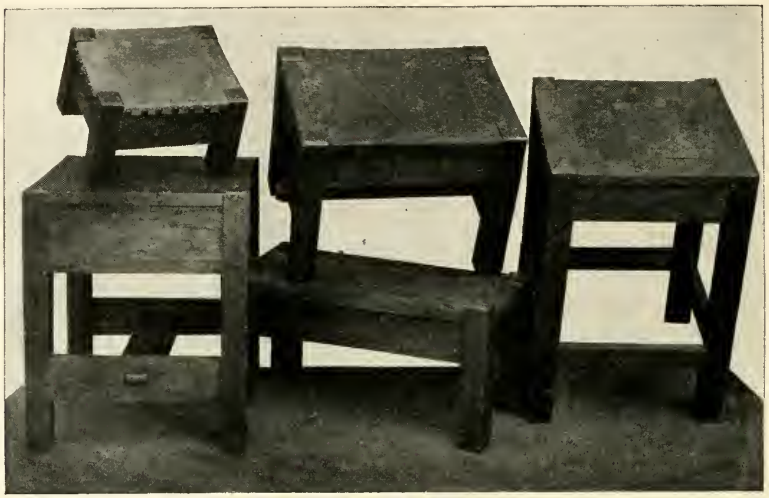
Two of the monthly conferences of the shop men with the director Dr. James P. Haney have been held. It is the purpose this year to devote the major part of these conferences to the consideration of good construction and of methods of teaching.

In pursuance of this plan Walter M. Mohr read a very carefully prepared paper on the "Decorated Model in Shopwork". Robert G. Weyh showed several charts to illustrate the method for modifying the end for a book-rack. Each chart started with a blank or type form and showed several good modifications of this form. In explaining these charts Mr. Weyh brought out the following principles which should govern in altering the outline of any forms.

1. The modifications must be simple.
2. They must take into consideration the grain of the wood.
3. The modifications must be so slight as not to loose the general shape of the type form.
4. The modifications must be consistent throughout. Straight and curved elements should not be combined.

Chas. Harper exhibited an ingenious method of keeping workshop drawings. The method consisted of requiring each boy to make a large envelope at the beginning of the term in which he keeps all drawings made by him in the drawing room for use in the shop. The envelopes of each class are kept together in a suitable box which may be readily carried from the shop to the drawing room. At the end of the term each boy's set of drawings is mounted on a large sheet of paper. In this way his drawings may be exhibited with the completed models made in the shop.

Eleven new shop instructors have been appointed in the two Boroughs to fill vacancies. The new men have been required to attend a series of ten lessons on "Shop Management and Methods" given by Albert W. Garritt under the director's supervision. Notes were required to be written up and the director conducted a quiz at the end of the series.



A conference of the teachers of drawing and shopwork was held on Monday Nov. 20 at the Stuyvesant High School, E. 23d Street, to consider the closer correlation of these two subjects, the principal, Dr. Frank Rollins acting as chairman.

The opinion of the meeting was that there should be regular conferences of the teachers of these subjects; that all shop models should receive as much consideration as possible as to proportions and form by the pupils in the freehand drawing room before attacking the problems in the shop, and that the instruction in mechanical drawing should first be of a practical character rather than a theoretical presentation of involved principles. A committee of three was appointed to investigate as to the best shop and draughting room terms, methods and conventions in mechanical drawing and report at the next monthly conference.

An evening elementary and industrial school has been opened at P. S. 80, on West Forty-first street, in Manhattan. The aim of this school is to give instruction not only in the subjects taught in elementary evening schools but also in a number of trades and occupations. The courses so far established, with the number of students in each, are as follows: bookkeeping 45, carpentry 38, cooking 53, dressmaking 410, embroidery 62, mechanical drawing 50, millinery 82, phonography 93. The equipments of the manual training and domestic science departments of the day school are used as far as possible in the evening work, but much additional equipment has been added. Prospects point to the necessity of adding many new courses in the near future.

ETHICAL CULTURE SCHOOL.

Miss Elsie Binns from the State School of Ceramics and Clayworking at Alfred, N. Y., began her work as assistant in the art department this fall.

A new high school art course has been added as an elective called art appreciation. It requires one period a week and consists of lectures illustrated with lantern slides. Pupils are required to keep an illustrated note book.

The art department has acquired a Yawman & Erbe case of portfolio drawers for holding mounted examples of work and illustrative material. A large case of portfolio drawers for holding mounted photographs of art subjects has also been purchased for the library, and a beginning is being made in a representative collection of art photographs and other reproductions. In the manual-training department, shopwork shows a gain in attendance and in zeal. Classes in pattern-making, molding and casting have been started this fall.

A loan museum has been started with the idea of gathering together models, instructive and mechanically and industrially significant to be loaned to pupils as books are loaned from the library. This makes it possible for boys to play with fine models, who would otherwise not have the opportunity on account of the expense of purchasing them.

A conference of the class teachers and teachers of manual work and art was held this fall on the correlation question. The possibilities as well as the dangers and limitations of correlation were discussed. The work of some grades seemed to offer far greater possiblities than that of others for related work in the art and manual subjects.

The domestic art department has had its equipment augmented by the gift of a power loom. This completes an evolutionary series of model and working looms.

Miss Anna C. Hedges has assumed the directorship of the department of domestic art at Pratt Institute. She received the degree of M. A. at Teachers College last June and has had extensive experience in teaching domestic art. Miss Cooley of Teachers College will give a course in textiles for the students of Miss Hedges' department during the winter.

Manual training in the public schools of Brooklyn is steadily increasing under the supervision of Walter S. Goodnough, director of art work. There are at present thirteen schools equipped for manual training. These were opened this fall with eight shop instructors,—a gain of five over last year. The new appointments are as follows: Henry E. Colton, formerly director of manual training in Syracuse, N. Y. and a Graduate of Teachers College; Joseph W. Oliver, formerly principal of a school in Nanticoke, Pa. and a Graduate of Teachers College; Mr. Howlet and Mr. Messenger, both graduates from Pratt Institute; Mr. Ableson, Graduate of the City College. Conferences are held monthly in the director's office, for the purpose of discussing the course of study and various other matters of interest to shop teachers. A new course of study has been adopted which was planned at these conferences.

One of the new features of the work in the evening schools this winter is the trade schools being conducted in the new manual-training high school in Brooklyn and in the Bryant school in the borough of Queens. For some time there has been an urgent demand for work of this kind in this city and it will probably meet with success. The subjects taught in these schools are fourteen in number and include

cabinet-making, blacksmithing, tinsmithing, electrical and steam engineering, industrial chemistry, applied physics and advanced dressmaking. The school will be open to both young men and young women.

THE manual-training situation in Richmond Borough is very gratifying to those most interested in that part of our school work; interest in the work is increasingly evident among both pupils and their parents. Shops are now fully equipped in six of the schools. Equipment is nearly ready in two others and still more will be opened in the course of the year. The exercises made in the shop are principally for use in the classroom. They consist of book-racks, model-stands, flower-stands, drawing-boards, T-squares, triangles, etc. Where exercises are to be decorated the design is carved in low relief upon the surface. No water color ornamentation is used. The working drawings and designs are done in the shop under the direction of the shop instructor.

In 20, Port Richmond, the boys are at work building a flat bottom row-boat, twelve feet long of white cedar with oak stem and stern.

In 17, New Brighton, the boys are constructing a model house containing eight rooms. The boys are to make furniture for this house while the girls of the sewing class are to furnish it with curtains, rugs, etc.

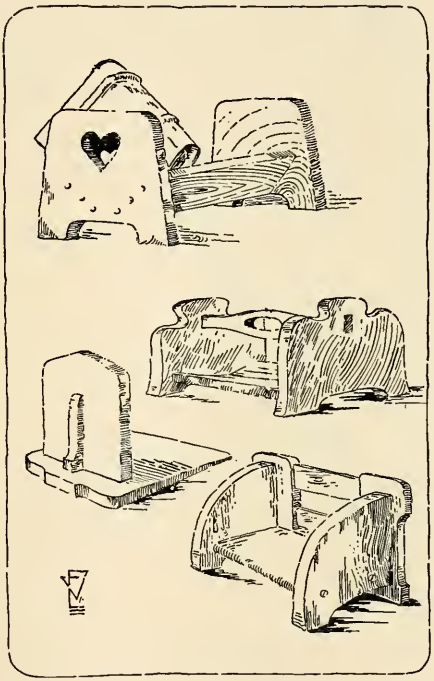
CANADA.

A unique method of holding a teacher's convention was used when on October 26-29, about three hundred teachers of Toronto, Canada visited the city of Pittsburg. They traveled in a special train; were received and entertained by the citizens and teachers of Pittsburg and visited various schools and factories. Mr. Richardson and three of his assistants were in the party and especially enjoyed the opportunity to visit several of the city manual-training schools, also the Schwab Manual Training School and the Carnegie Technical School.

SIR WILLIAM MACDONALD, a wealthy merchant of Montreal, has contributed large amounts of money, for a number of years, to help along the cause of education in Canada and his efforts to improve rural-school education are accomplishing excellent results. The plan devised for improving these schools consisted of four parts: First; the founding of consolidated schools, second; the appointment of travelling instructors in nature study and school gardening, third; the establishing of a school for fitting these traveling instructors and others interested in nature study and manual training, fourth; the building of an agricultural college and model farm at St. Anne de Beaupre, Quebec. All but the last of these have been carried out and that one is well under way. The consolidation of the schools is securing increased and more regular attendance and greater interest. The traveling instructors add a considerable to the interest in the school work, for it brings within reach of the rural students new interests and occupations which have previously been beyond their reach. Nature study, manual training and domestic science all of such vital interest to those attending rural schools should be well understood by the traveling instructors. It was to provide for this that MacDonald Institute was established at Guelp, Ontario. Such work is sure to improve education in Canada.

BREVITIES.

Readers of the Magazine will recall that Competition No. 2, announced in the April and July numbers, called for designs for a receptacle for books. It was stated that this might be a rack for a desk, or shelves to be hung on the wall, or a case or rack to rest on the floor. The drawings submitted were to be judged with reference to (a) suitability of the object represented, (b) construction, (c) design, and (d) draftsmanship. Each of these was given 25 points by the judges in estimating the value of the several pieces submitted. Unfortunately the draftsmanship brought down the marks of several of the more interesting designs.

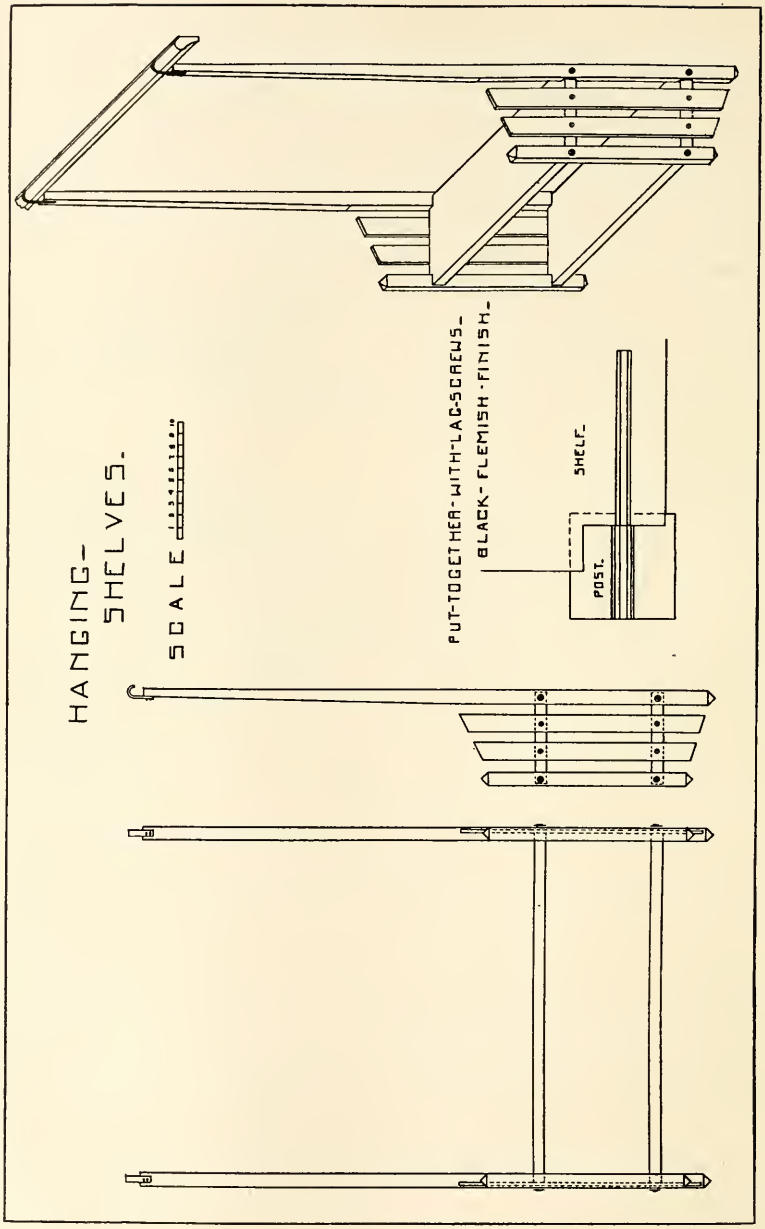


The first prize of $5.00 was awarded to Ira S. Griffith of Oak Park, Ill., for the hanging shelves (p 114); the second prize of $3.00 to Harris W. Moore of Watertown, Mass., for the book rack (p 115); and the third prize of one year's subscription to Bessie I. Savage of Chippewa Falls, Wis., for the book rack for library table shown in the lower right hand corner of the accompanying illustration. This group of sketches brings together some of the more interesting suggestions gleaned from the drawings received.

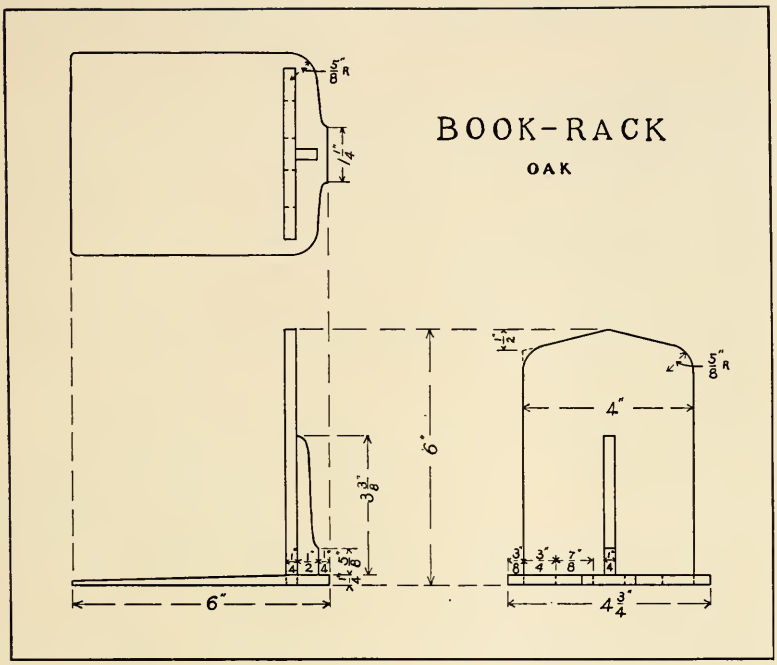
The initials on pages 77, 90, and 93 were contributed by Edwin V. Lawrence. The illustration on page 106 shows four examples of hand-built pottery before it was fired. These were made by summer-school students under Forrest Emerson Mann. The illustrations on pages 110 and 120 represent the work of summer-school students of the Handicraft Guild, Minneapolis.

Apropos of the present discussion of the rural school problem, is the following quotation from an article on "Manual Training: Theory and Method," by Dr. C. M. Woodward in The Outlook for December 16:

"Some people fancy that manual labor is the same as manual training. We are frequently told that the boy from the farm has had manual training; it is true he has had some manual training, but he has had a great deal of manual labor along with it. I know, because I was a farm boy and learned everything that could be learned on a farm previous to my college course. I learned to use correctly the hoe, the shovel, the plow, the scythe, the cradle, and the ax; but I never learned the proper use of bench tools."



FIRST PRIZE — IRA S. GRIFFITH.



SECOND PRIZE — HARRIS W. MOORE.

REVIEWS.

How to Study Pictures—By Charles H. Caffin. The Century Co., 1905; 7×9 in. pp 513, 56 page illustrations, net $2.00. Postage extra.

Trust an old newspaper man to make this 'story' clear, virile and entertaining. To those who have been confused by the multitude of names, schools and styles which have confronted them when they made tenative ventures into the land of art, Mr. Caffin's book will come as a sane and cheerful guide. Instead of endeavoring to review the work of every painter of note, the author has elected to follow the comparative method, and has contrasted the work of twenty-eight pairs of painters, from the time of Cimabue and Giotto to that of Whistler and Sargent. Each painter is represented by one picture which is placed facing the work with which it is to be compared. Effort had been made not only to select representative pictures, but to have the pairs sufficiently alike in subject matter to make the comparisons illuminating as regards the ideals, knowledge, method and technique of the respective painters.

The method has in it much to be commended. Not only in insight given into the work of the men represented, but strong pegs are driven in on which the reader can later hang added knowledge of 'schools' and 'periods.' Both to the high school

teacher of art who will find the plan of the book helpful, and to lay the reader anxious to gain an intelligent appreciation of pictures, this volume is to be commended. In a field in which many hazy lessons are given, it stands out as a bit of good teaching. —H.

The Psychology of Beauty. By Ethel D. Puffer, Houghton, Mifflin and Co., 1905; 5×7 in.; pp, 286; $1.25.

There is a good deal of difference between knowing that a thing is beautiful, and knowing why it is beautiful. Most of us, where we obliged to elect between the two would choose the first; but given appreciation, even in modest measure, there's nothing which deepens its sense more, than an understanding of the laws and principles which underlie the beauty we admire. Such understanding makes of our untutored feeling a reasoning admiration.

To this end the present volume leads. It is not meat for babes, but will prove both dinner and dessert to those who have had some grounding in psychology and can follow the meshes of close wove, logical thought. The principles the author expounds she developes from her thesis on 'the essence of beauty'. The latter she defines as "the possession of a quality which excites the human organism to functioning harmonious with its own nature." How different forms of art, music, literature and the like, exhale this essence, and by their fitness to our senses, occasion us delight unaccounted for by the ideas they express, is shown in successive chapters. Differing in clearness of exposition and precision of statement from most treatises on aesthetics, the present volume will be welcomed by those who feel within themselves the instinct born to primeval man as 'the desire of beauty', but who, unlike their fellows, rest unsatisfied in their failure to comprehend their own liking for the lovely and their contempt for all that's crude and graceless. —H.

Occupations For Little Fingers: A Manual for Grade Teachers, Mothers and Settlement Workers. By Elizabeth Sage and Anna M. Cooley of the Department of Domestic Art, Teachers College, Columbia University, New York. Charles Scribner's Sons, New York, 1905. 5½ x 8 in., pp. xviii. +154. 16 half-tone plates, 102 figures; price, $1, in lots of 10 or more, 80 cents.

As indicated in the prefatory note—"This little book is in answer to a number of demands which have come from different parts of the country. Busy mothers at home, grade teachers and settlement workers are constantly asking, 'What can I do with my children? They want something to *do*.' The object of this book is simply to furnish some ideas and to act as a suggestive medium; in no way does it attempt to correlate the work for the teacher.....Mere formal models are not mentioned, the book dealing with attractive and useful articles. It sets forth the best way of making such articles and it tells what they should cost.....The teacher who has the handwork in the early grades finds here a series of valuable suggestions, while the mother is fortified with delightful occupations for rainy days."

There are thirteen chapters: "A Talk about the Materials Used" sets forth helpfully the prices, qualities and working characterstics of the various materials and the forms in which they may be secured in the market; "Some Uses For Cord and String" include the making of a dozen or more articles with various knottings and braidings; "A Few Suggestions For Raffia" describe the making of picture-frames, napkin-rings, hats, shopping-bag, and other things; "Paper Cutting and Folding;" "Some Stories in Clay;" the construction and operation of a simple loom with heddle,

shuttle and batten are explained in a brief chapter on "Weaving;" "Bead Work;" "How To Furnish A Doll's House;" "Simple Upholstery For Home Use", related to the doll's house; "Crocheting and Knitting;" "Some Special Work For Boys;" "How To Use Nature's Materials."

The plan of the book is well conceived and it is certain to prove helpful to teachers for its suggestiveness. The description of each article is accompanied by a note as to the materials and tools to be used, the quantities, and the approximate cost per child. There are frequent suggestions for adapting the work to the capacity of the child.

The book cannot be commended, however, without some reserve because of the quality of the illustrations. It is to be regretted that the authors did not demand the same degree of excellence in the drawings and half-tone engravings as in the text. An otherwise excellent work is marred especially by the hasty or careless execution of the drawings. Such drawings as Figures 49 and 76, for examples, set up two low a standard of workmanship for either the child or the teacher who uses the book.

Normal, Illinois WILLIAM T. BAWDEN

Industrial Work For Public Schools. By Martha Adelaide Holton, Supervisor of Primary and Industrial Work, Minneapolis, and Alice F. Rollins, Principal of the Sheridan School, Minneapolis. Rand, McNally and Company, Chicago, 1904. 6¼ x 8 in., pp. 134. 80 illustrations; price, 90 cents.

This book presents an outline of work for the primary grades prepared for the use of the grade teacher who has not the time or ability to plan her own course. For the first two years the work is laid out by school months. First-year work occupies pages 8-43, second-year work 44-85, third-year work 86-105, fourth or fifth-year work 106-126.

The general plan of the book may be seen from the following representative outline for the month of January, first year: Detailed directions are given for making five models by weaving with strips of plain and colored paper—bookmark, long bookmark, napkin-ring, mat, and pencil box; two illustrations in half-tone show a number of examples of this kind of work; general suggestions or hints are offered, such as—Tell stories of Eskimo life, and have an Eskimo house built. Continue cutting from poses and stories. Play Eskimo games and have cuttings made from them.

The processes described in the book are: paper cutting, folding and weaving; weaving with yarns, raffia, etc., on cardboard and wood looms; braiding with raffia and laces; basketry in raffia and rattan.

A feature of the book is its numerous poetical excerpts and quotations from the writings of such men as Professor Dewey, Colonel Parker, Henry Van Dyke, and others. There are nearly one hundred of these selections in all amounting to about thirty-three pages of matter.

The mechanical make-up of the book is excellent, the work of engraver and printer being of high quality.

Normal, Illinois WILLIAM T. BAWDEN

Machine Shop Tools and Methods. By W. S. Leonard. John Wiley & Sons, New York. 6×9 in.; pp 554, 689 illustrations; cloth, $4.00.

Teachers and students interested in machine-shop practice have been unable to find a book of convenient size dealing with machine work and methods. This one by Mr. Leonard seems to supply the need.

The limited amount of time a student has for shopwork makes it necessary that the teacher give a course of lectures on the work, or references for the student to look up. Only in this way can he be given the instruction necessary to enable him to adapt himself to any problem in the machine shop that may present itself.

The first chapters of this book explaining the use of measuring tools, the hammer and chisels, and describing the uses of files are interesting and instructive. The description of machine tools is complete. Illustrations are given of machines by some of the best makers, with drawings explaining features which are enclosed and are sometimes a mystery to those not thoroughly familiar with the working parts of the machines. The gearing in the head and apron of the lathe and the formula for figuring the change gears for thread-cutting are described. The book explains fully the methods of setting and shaping the tools for the different operations of thread-cutting. The different kinds of milling machines are shown and described, together with the cutters and fixtures used in the varied work of the machines.

At the back of the book are "Questions on the Text" by which a student may prove to himself whether he knows what is in the book and what has come to him through personal observation.

BRADLEY POLYTECHNIC INSTITUTE. W. F. RAYMOND.

Nelson's New Drawing Course. Number 5 of a series of Teacher's Handbooks by J. Vaughan, Superintendent of Drawing and Manual Instruction, Glasgow, Scotland. Thomas Nelson & Sons, London, 1905. 11¼×8¾ in. pp. 95; price, 2s. 6d.

It is always helpful to look over foreign courses in drawing and manual training. We get suggestions in method or material or technique. But this book is more than ordinarily suggestive; American teachers will find it a valuable reference book and guide in certain lines of technique.

The chapter on brush drawing is excellent. We know comparatively little about such work in America but after looking over Mr. Vaughan's four plates named for the seasons and his illustrations of the methods in brush drawing, one is easily convinced that we ought to see more of it done on this side of the Atlantic. The chapter on clay modeling also is needed here. We cannot say as much for the cardboard work and some of the perspective drawings, but we commend most heartily Mr. Vaughan's emphasis on thoughtful, accurate drawing in rendering floral forms and common objects. The book reminds me of a conversation last spring with one of America's leading supervisors of drawing. While speaking of the changes in our work during the past twenty years he said, "Do you want I should tell you what is going to be the next fad among the drawing teachers?" Of course I did. His reply was, "Good drawing." He had lived long enough in the work to see the pendulum swing several times and he felt the need of more attention to truthful representation and good technique. Mr. Vaughan's book is in line with this thought. —B.

Advanced Mechanical Drawing by Alpha Pierce Jamison. John Wiley & Sons, New York, 1905. 5½×9 in.; pp. IX+177, 27 full-page plates; price, $2.00.—A well written book suitable for advanced students. Part I contains chapters on the theory of isometric drawing, shadow projection, cavalier projection, shadows and perspective. Part II consists of theoretical and practical problems from the preceding subjects.

The book is fully illustrated by plates. There seems to have been no idea of saving money by making one cut serve a dozen points of explanation. The drafts-

manship is excellent with the exception of the three plates of lettering which are a disappointment.

Among the problems there are a number that are of great value in helping the student to understand t he theory explained in other chapters.

Bradley Polytechnic Institute, E. V. Lawrence.

Elementary Course in Mechanical Drawing Parts I and II. By W. D. Browning and F. H. Sibley. The Browning Press, Cleveland, Ohio; 6×8¾ in.; Part I, pp. 58; Part II, pp. 30; price, each part, 50 cents.

"This course is arranged primarily for evening-school students, or young men who are studying and earning a living at the same time." It therefore gives special attention to some subjects which teachers of experience will at once recognize as essential in a book adapted to the needs of such students. On the other hand, the course follows the old order and cannot be classed with the recent movement in the teaching of mechanical drawing, which required that the teacher present to the pupil problems for solution, not problems already solved, and that these problems be as definite as problems in algebra and as practical as the draftsman meets in the factory.

The books are conveniently bound in flexible cloth, but a very serious defect is the poor draftsmanship of many of the plates. —B.

A Course in Tinting. By W. D. Browning. The Browning Press, Cleveland, Ohio. 6×9 in., pp. 14, 4 colored plates; price in cloth, 50 cents, in paper, 30 cents. This book has been prepared for schools and colleges where only a few plates of tinting are introduced into the regular drawing course.

Aboriginal Use of Wood in New York. By William M. Beauchamp. New York State Museum Bulletin, No. 89, New York State Education Department, Albany, 1905. 5¾×9 in.; pp 272, 35 plates, paper covers; price 35 cents. Of all this series of scholarly papers by Dr. Beauchamp none is likely to be of so much interest to teachers of handwork as this one. A few of the headings suggest the subjects discussed: fire-making, food, houses, forts, burial, weapons, warlike usages, canoes and fishing, household articles, land travel and transportation, etc., etc., The bulletin is admirably illustrated.

The following have been received:

Teachers' Manual for the Elementary Schools of the State of Washington. Contains an illustrated chapter on manual training, by B. W. Johnson, director of manual training, Seattle, Washington. This chapter is full of just such practical details as superintendents, principals and teachers are looking for when they are about to introduce manual training into their schools. It gives floor plan and specifications for a manual-training-room, lists of tools, their cost, outlines of courses, a selected list of books on the manual arts, etc.

Course of Study in Manual Training. St. Louis Public Schools. Contains working drawings and reproductions of photographs of models used in woodworking classes in the seventh and eighth grades.

School Gardens. By B. T. Galloway, Chief of Bureau of Plant Industry, U. S. Department of Argiculture, Washington, 1905. 5¾×9 in.; pp. 47+5 plates. This is a report on some co-operative work of the Department with the Normal schools of Washington, to which is added notes on school-garden methods followed in other American cities.

Quinquennial Report of the Public Schools of Bloomington, Illinois. 1900-1905. J. K. Stableton, Superintendent. A report of unusual value to teachers interested in nature study, floriculture, the beautifying of school grounds, manual-training and domestic science. It contains several good half-tones of flower pits made by boys, flower gardens, plants, vegetables, beehive, manual-training work, etc.

Institute Bulletin. A book of illustrations showing buildings, grounds, equipment, students, and pieces of work produced at the Louisiana Industrial Institute, Ruston, La.

Manual Arts Bulletin. By Fred J. Orr, State Normal School, Athens, Ga. September, 1905. A 19-page booklet containing courses of study and "suggestions as to teaching manual arts in the common schools."

Report of the Western Drawing and Manual Training Association, 1905. Mary E. Chamberlain, Secretary, Louisville, Ky. 6×9 in.; pp. 206; price, 50 cents. This contains the full report of the Chicago meeting.

Report of the Board of Education of Quincy, Ill. for 1904-5 containing reports of the directors of manual training and domestic science, and outlines of courses of study.

Handbook of the Alumni Association of the Northeast Manual Training School. Philadelphia. Containing a list of the members and their present occupations. Price, 25 cents.

Course of Study and Syllabus for Elementary Schools. New York State Educational Department. Albany, 1905. Contains a 37-page outline of work in drawing and manual-training.

MANUAL TRAINING MAGAZINE

APRIL, 1906

ONE OF OUR PROBLEMS: THE PLACE OF SKILL IN MANUAL TRAINING [1]

CHARLES A. BENNETT.

NEW discoveries precipitate new problems. New conditions necessitate changes in proceedure. This is just as true in teaching as it is in scientific investigation or in business. Any change in public sentiment, any growth in ideals calls for a corresponding change in the teacher's work. Especially is this true in a subject so new as our own. But in our enthusiasm to solve the new problems we should not forget the old ones. There is danger in cutting loose from what is behind in our eagerness to grasp what is before us. Instead, we should hold fast to what we have proven to be good while we seek out something better.

The time was when the manual training teacher's problems were chiefly technical in character. He must analyze the processes of working with tools, discover fundamental steps, and then see that his class followed in the correct order. He must select processes with reference to the limitations of school conditions and must design a suitable equipment. In practice his real aim was to give technical skill, yet theoretically the instruction he gave had no special industrial value. According to the faculty psychology current at the time, he was giving training in accuracy, patience, neatness, etc. He was a believer in educational specifics.

In those days the manual training teacher had nothing to do with children's interests. The word correlation had not yet come into his vocabulary. He never thought of art as having any connection with

[1] Address before the Illinois Manual Arts Association, Urbana, Ill., Feb. 16, 1906

manual training. As for the word industrial, he avoided it. Its very sound suggested the doom he feared.

What marked changes have taken place since that time! The immediate aim is no longer mere technical skill, though the work is more industrial. Not only the development of power to execute is sought, but ability to initiate, to plan and discriminate, and then to understand industrial materials and processes and, in an elementary way, to appreciate the relation of these to society. We have come to think more about the progress of the individual pupils under our care, and we speak less frequently of the average pupil. Through the study of physchology and by taking note of the children about us we have come to realize the value of the pupil's interest as an ally in our teaching. Indeed, so much do we appreciate it that sometimes we have failed to discriminate properly between different kinds and qualities of interest. The arts and crafts movement has shown us that art has a place in our work—that manual training without art fails to accomplish its purpose most fully. We have come to look forward to the time when art and manual training in the school shall be generally considered one fabric known as the manual arts.

Surely all this would be remarkable progress for two decades were it not for the fact that we have hardly more than moved along the line of least resistance. We have been but a small part of a great educational awakening that has swept over our land.

But in our enthusiasm for the new education we have sometimes been lured away from the good things of the old. The rapidity of the changes, the bringing forward of new and often conflicting theories so early in the development of our work and the variety of conditions under which we as individual teachers have been working have forced upon us so many complex problems that it is no wonder that at times our vision has been clouded. Such, it seems to me, is our present condition in reference to the problem before us. Are we clear as to what our attitude should be toward skill as a factor in our work? Is it a fundamental factor in manual training or can we afford to leave it out of consideration?

In discussing this problem the first difficulty arises because we do not have in mind a clear definition of the word skill. Professor John Dewey, says, "Skill is simply a thoroughly adapted habit." A person possessing skill has formed an economical habit of doing the thing in which he is skilful. If you are skilful in the use of a saw you can use the saw effectively without making unnecessary motions or wasting undue energy. In other words you have acquired a good technique.

The best technique[1] is merely the method of working which is generally recognized as the most effective and economical. The purpose of skill is to save time and nervous energy. Skill makes work easy. Think of the hard labor before the man who without skill in the use of a plane should at once try to make a finely finished cabinet out of rough lumber. What a conflict between old habits and the human will! What inhibitions! What discouragements! But to the skilful man this is an easy straight-forward process. This illustration should hold equally well in so simple yet withal so complex a process as writing your own name or eating your breakfast. Defined in this way certainly skill is a desirable acquirement. In certain directions it is a necessity. We cannot get along without it.

Skill is also an important factor in interest. This is a much more important consideration in teaching the manual arts than is generally recognized. Skill must be required or interest will not be maintained. If skill is not developed the pupil will see the crudities of his work and give up the whole thing. We have sometimes forgotten this and in our desire to stimulate the pupil's interest have allowed him to make a thing beyond his real capacity. We have appreciated what a powerful factor interest is in acquiring skill, but we have not realized that skill is also a factor in maintaining interest. Both must be considered together. Nobody cares to continue to do work of which he is ashamed. Moreover, if the work given be too difficult and no skill is acquired in the process there is great danger of forming bad habits. There is no virtue in the mere fact that you are cutting wood with a tool; you must do it in the right way. There must be some desirable result in you if the work is to be counted as educational. To encourage pupils to haggle wood as I have seen it done in one or two schools is an educational crime. The effect upon the pupils is positively injurious. The bad habits thus acquired are extremely difficult to eradicate, especially the intellectual components of these habits.[2]

If, then, skill is so important a consideration in manual training, what has caused the reaction against it? Why have we departed from

[1] In this connection we should distinguish between technique and accuracy. Technique refers to the *way* of doing a thing; accuracy to the *quality* of the doing or the result.

[2] This statement should not be interpreted as denouncing all inaccurate work nor the crude work, often excellent in its place, that is done in the primary grades. It refers to work with edged tools when the child is old enough to acquire skill in their use. But skill as a factor in maintaining interest should receive some consideration in all grades of manual training work.

the good old way? Simply this: Skill alone is not a worthy end. Mere skill in a very narrow range of activity produces the factory operative. Skill in a little wider range of activity produces the journeyman mechanic, and the aim of manual training never has been the production of either factory operatives or journeyman mechanics. The purpose of manual training has been to provide a needed element in general education. To this end a large measure of thought must accompany the process of acquiring skill. Skill without thought or with little thought is beneath our purpose; skill with the maximum of thought is an ideal still above us.

In the swinging of the pendulum away from skill there has been, in some quarters, a distinct loss. A looseness and indefiniteness has grown up which endangers the very foundations of our work. There has been a striving for artistic effects at the expense of sound construction; a useless lugging in of every other subject in the curriculum under a mistaken idea of correlation; a following after some phantom theory that led to nowhere. In other instances, however, where the swing of the pendulum has not been so far, there has been evident gain on the thought side without appreciable loss in skill. The field has been broadened and our work has been enriched from the realms of science, engineering, art and industry. I recall in this connection the criticism made a few years ago of a noted manual training school, by one of the most widely known manufacturers in this state. After experience in employing several graduates who had been trained under the modified Russian system of that school, he said that they were too accurate in their work—that they made fine joints where exact work was not needed. He believed that it would be better to place less emphasis on the making of accurate joints and more on principles of construction with the aim of developing power of discrimination in matters mechanical. These boys had become skillful, but in too narrow a field. Less skill and more breadth would have been better even for these high school boys and from the standpoint of a manufacturer. In how much greater degree is it true today in an elementary school and from the standpoint of an advocate of a broad general education!

The problem, then, for us as teachers of the manual arts is how to give to skill its rightful place. There must be neither too little nor too much in any one kind of work and there must be many kinds of work to insure breadth of training. In each kind the thought element must be strong.

With those who have appreciated the importance of this thought side of the manual arts, several means have been tried to produce the desired result. Some teachers have lined the insides of their wood-working shops with specimens of wood, the barks and leaves of trees, pictures of trees, samples of wood products and the like, and have made use of such collections in teaching the material worked upon. Others have given lectures on forests, forestry, lumbering and the machinery used in preparing it for the market. Still others have centered the thought of the pupils upon problems of engineering, as bridges, windmills, water-wheels, steam-shovels, canals, railway cars and the like, and have had the pupils construct these in miniature. All these are commendable, but do they strike the root of the problem? The first two are informational in character, and on that account serve a good purpose, but they are not always sufficiently related to the constructive problems in hand. The efficacy of the latter type of problem may be questioned in large public-school classes unless it be directed by a teacher of broad preparation, exceptional organizing power, and a sensitiveness to good workmanship which prevents him from accepting anything but careful work from his pupils. An occasional problem of this kind may serve its purpose well, especially for exceptional pupils, but its practicability beyond that may be doubted. Is there not some way of insuring a rich thought element along with the acquirement of skill throughout our entire course?

I believe we will be able to answer this question in the affirmative if we will select problems with more special reference to effectiveness in stimulating thought, and then present them whenever practicable, so that more than one method of solution is possible. A sufficient variety of such problems should be provided that individual interests may be enlisted. It is not necessary that a problem be complex in order to require thought in its solution, but it is necessary that it be presented as an *unsolved* problem, not as a solved one. Too often in our work we present the problem solved, leaving the pupil merely to follow what we have thought out for him. We do most of the thinking; he does the hand work. By pursuing this method we may be depriving him of the most valuable part of the exercise. Instead of dictating the steps in the working out of a problem we may require the pupil to make his own analysis, writing out the steps, submitting them for our criticism and approval. At the same time he can present a bill of materials needed instead of relying upon us to furnish him with just the thing he wants at the particular time he needs it. The construction of a box or similar object may be worked out if only the inside or outside dimensions are

given. Better still, the pupil may construct the box to meet some need that has arisen in his activities outside the workshop. Then he himself will supply even the specifications for his box. A problem similar, from the thought standpoint, is to frame a given picture, and this way lead to a study of artistic framing. Making individual or class collections of different kinds of wood may lead out to a more or less comprehensive study to trees, wood, grain, color and hardness, as well as provide practice in the use of the plane in working the pieces to definite dimensions.

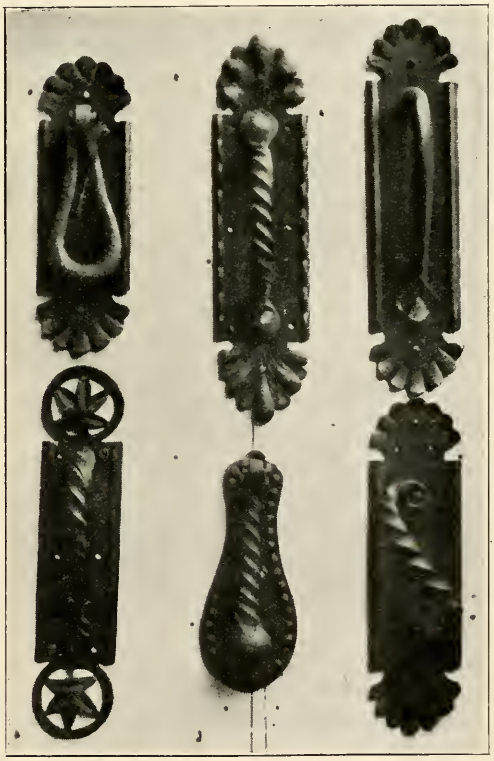
If properly taught the modification of the outline of an object, as a cabinet or book-rack, may furnish an opportunity to study form and the principles of design. Too often, however, such work degenerates into mere modification, and for the worse instead of the better. A seventh grade teacher, a few days ago, wishing to demonstrate the progressiveness of the manual-training work in her city said to me: "It is just wonderful what designs the boys will make. I am surprised at the number of different combinations they will make with arcs of circles." "Have mercy on us!" I almost said aloud, as she further informed me that the designing was all done at home. Certainly there is little or no virtue in mere modification; it is modification as the result of intelligent thought and some feeling for form that we want. This can come only when the pupil is inspired by and his work criticised by a teacher who is sufficiently trained to make creditable modifications himself and *knows why* they are creditable. If the teacher has had no training in design he would do better to let alone modification of outline.

The decoration of surfaces of objects constructed by the pupils is valuable in a similar way, and is subject to similar dangers. The best problem of all from the thought standpoint may be something invented or designed and planned to meet some real need in the pupil's experience. It is not to be expected, however, that such problems can occupy all of the time of the course without the teacher forcing the pupils, needs in such a way as to destroy the peculiar value of that type of problem.

To the teacher of manual training whose manufacturing instinct is highly developed all these thought-stimulating problems are more or less unsatisfactory because he wants to produce a large number of things and to produce them rapidly. Thought work is slower than the factory work. In the long run, however, even his objections are met because more real power to accomplish is gained. The ideal teacher, on the other

hand, cares little or nothing for the things made, except as they represent growth in power on the part of the pupil.

If this view of the problem before us be accepted, then we as teachers of the manual arts should be careful in our work not to swing too far away from the system of good technique and sound construction under which many of us were trained. What we need to do is to enrich our work, but in so doing hold fast to what we have proven to be good. It is a false philosophy that ignores skill in manual training work and a false art that places decoration before stability of construction. After a manual training subject, as wood-turning or forging or modeling, has been given its place in the curriculum we should plan our course of instruction with reference to (a) the progressive acquirement of skill in that subject, (b) the interests of the individual pupils, and (c) the thought-stimulating qualities of the problems.



SERVICE AND CULTURE.

CALVIN M. WOODWARD.

ODERN education is to be serviceable. The idea of service underlies every detail of it, and that service is objective, altruistic. and therein it differs from that older education whose supreme object is "culture," which, as Emerson says, is valued not for what it enables one to accomplish for others or for the world, but for what it is supposed to accomplish in the student himself.

The writer has the greatest respect for the noble seer of Concord, and feels sure that were he living to-day and fairly in touch with the content of modern education, he would agree in the assertion that true culture cannot exist apart from a conscious preparation to be of service to others. No man lives nobly who lives for himself alone; and, on the other hand, no man can acquire an education which will enable him to be of eminent service in the world's work, without experiencing in his own life and character that refinement of taste and that love for what is best and truest in word and deed, which always mark the cultivated man. The accomplished engineer is preforce a cultivated man, though as a rule he is the last to claim consideration as such. The poem of "Abou-ben-Adhem" should be rewritten. It should read:

"I pray thee then
Write me as one who *serves* his fellow men,"

and on the shining scroll his name will still "Lead all the rest."

I lay no claim to high motives; I have no monopoly of high aims. Even bad systems of education do not always prevent the occurrence of men of service. History is full of the records of men who, like Emerson, did splendid service for humanity, though they knew little or nothing of what is characteristic of the modern technical curriculum. We all know that there is more than one avenue to culture. In point of fact there are many avenues, and one purpose of this paper is to claim for the accomplished engineer his right to equal and full membership in the increasing brotherhood of culture.

And yet men have frequently deplored the fact that certain studies have been found useful. It has been difficult for the writer to accept the evidence of his own eyes when he has read of the regret of college

professors that certain college studies have been found useful in engineering. It is hard to accept this statement, but it is true, Recently the writer called public attention to the words of a professor of one of the most renowned universities in the United States, who said:

"With the increase in the utility of studies, they will be of less value in educating men. Whatever makes them more fitted for utility studies, makes them less fitted for general culture."

Hence he would have us believe that mathematics and electricty have less educational value than formerly when they were of less utility.

Again he asked:

"Shall a subject be taught with a view of making a utility from it? or shall it be taught with the purpose of producing the greatest effect upon the mind and culture of the pupil?"

The experienced teacher will not fail to see a fine distinction here. The seeker after cultnre must be careful not to learn his subject thoroughly. If he go too far, and master a subject, and make it good for something, he will miss the object of his search! Instead of being a "man" or a person of general culture, he will be only an "expert," or an "adroit" engineer. That in my judgement is superb foolishness.

The education of an engineer not only aims at a mastery of fundamental principles and a familiarity with their applications in the constructive arts of our modern life, but it possesses the splendid property of arousing a lively interest in the student and of stimulating his intellectual energy, and often his physical energy, to the highest pitch, so that study and laboratory practice are both pleasurable. And here again the old prejudice breaks out in a new form. Recently, in the *North American Review* the writer ran against an advocate of uninteresting studies for the purposes of mental culture. The writer has no space to review Professor Wendell's article, which has many good points, but he must quote three sentences which it is safe to say no engineer and no teacher of engineers would ever have written.

He says:

"The practical aim of a general education is such training as shall enable a man to devote his faculties intently to matters which of themselves do not interest him."

"The very fact that the abstractions of mathematics must generally seem repellently lifeless, is part of the secret of their educational value."

He says further, that one reason why the natural sciences do not have greater educational value is because they "are apt, nowadays, to prove a shade too interesting."

If the writer were to discuss the "doctrine of interest," he would be carried far astray from his proper theme; yet it is not altogether foreign to those engaged in the education of engineers to call attention to the fact that a Harvard professor, though speaking only for himself, makes such statements, and takes a position which must carry him to such results as these:

1.—That it is harmful, educationally, for a student to become deeply interested in his studies; and,

2.—That the most efficient method of training a man, presumably to be of some use in affairs, is to confine his attention during all his youthful years upon matters in which he takes no interest, and "which of themselves could not hold his attention for five minutes together."

The writer is confident that every engineer will agree with him that the deeper one's interest in a study, the better in every way, educationally and otherwise, so far as that study is concerned. It is true all studies are not equally interesting, and it may be harmful to allow a lively interest in one subject to draw one away from subjects which are less inviting. But the idea that it can possibly be better, morally or mentally, for a student to find his studies uninteresting than exceedingly interesting, is, the writer feels sure, obnoxious to every one who knows anything about engineering education. The zeal of engineering students is proverbial, and not one of us wishes it to be otherwise.

FURNITURE DESIGN.

FRED D. CRAWSHAW. DRAWINGS BY EDWIN V. LAWRENCE.

E have a great deal of the mediocre in furniture today because we who use it either do not know what is the best, or do not demand any thing better than we find in the stores. We purchase furniture too often simply to fill a room. We should purchase it because it is to have a definite use and will fill a particular place in our home. There is a growing demand for this kind of furniture.

The use to which an article is to be put will determine, very largely, the material out of which it will be made. Modern home conditions have been met by wooden furniture, therefore we shall consider wooden furniture only, in this article. Wood has a straight grain; if this is given due consideration we will not find table legs that will snap in two; chair parts that have been steamed and bent into unnatural shapes, and little projecting parts left on our side boards and dressers that will be knocked off on the first moving day.

Use first, and material second; then we may well turn our attention to what the designers choose to call the requirements for design, viz: line, form and space. For our purpose we will use different words, but will convey much the same meaning when we give these requirements the following headings: (a) general lines and proportions, (b) construction, (c) decoration.

DEFINITE AND INDEFINITE DIMENSIONS.

The problem of settling upon the general lines and proportions in any piece of furniture is liable to be solved differently by each individual designer. Each particular article will call for certain quite definite dimensions, either because it is to have a particular use, or because it will fill a particular space. The other dimensions, which will determine the proportion, and, to a certain extent the lines of the object, must be decided upon by the designer. This makes the problem an indefinite one and an individual one in consequence. Good practice and long usage come to our assistance here, however, giving what we call "principles in design" to help us in determining what these *indefinite* dimensions shall be.

In "Line and Form," Walter Crane makes this statement: "The usual problem a designer in the flat has to solve is to fill harmoniously a given space or panel defined by a line—some simple geometric form

—such as a square or a circle, a parallelogram, a diamond, a lunette." Again, in speaking of filling these forms, he says, "We seem to feel the need of some answering line or re-echo in the character of the composition to the shape of its boundary, to give it its distinctive reason for existence in that particular form—just as we should expect a shell-fish to conform to the shape of its shell." This gives us a relation between the border of a space and the lines that fill it. *There must be harmony of form.*

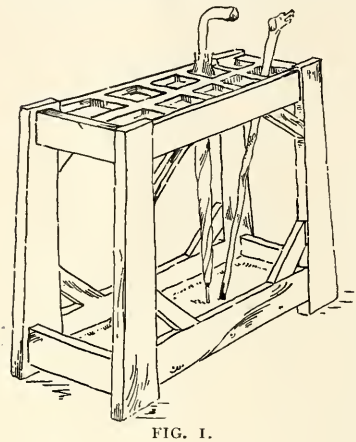


FIG. 1.

From this principle we may determine the indefinite dimension in our furniture design problem if we know how our space is divided up with reference to use; as for drawers, doors or panels. The number and kind of these is known, but their dimensions are still indefinite, and their shape is dependent upon the space outline.

To illustrate: If we are designing a library table we know that two feet and a half will be the height, and probably about the same dimension will be used for its width. These dimensions are definite. But we cannot speak with such certainty concerning its length unless we know what the drawer requirements are.

These indefinite dimensions, that, when determined, make good or bad proportions, are the ones to be considered with great care in the first steps of a design. They enable one to "block in" the form, as it were. The details of this blocked-in form are then cared for by deciding upon the character of lines, curved or straight, broken or continuous.

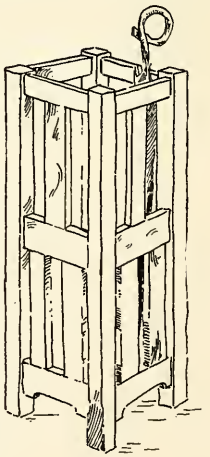


FIG. 2.

To illustrate how the indefinite dimensions may be considered in a specific problem we will design an umbrella rack. Here the definite dimension is the height, determined by the height of the umbrella. From the pan to the top rail we need a distance of about two feet. Now what shall be the width? If we wish a vestibule rack we will probably decide upon a long narrow shape as illustrated in Fig. 1. The width of the vestibule will help us determine our second and third dimensions.

If we wish a hall rack, the probable position it will occupy in one corner will call for the common four-post square rack, Fig. 2. The one width dimension then is the indefinite one. At least two things will be considered in deciding this dimension:

USE AND GENERAL PROPORTIONS.

If the top opening is too large, the umbrellas will take a slanting position in the rack which will not make a pleasing appearance. If the

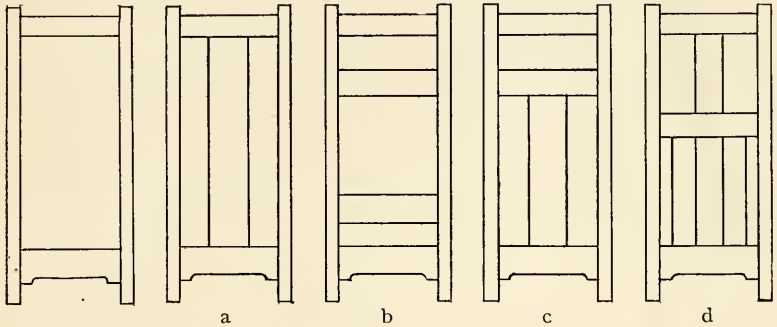


FIG. 3.

rack is half as wide as it is tall, we may have a proportion which is too precise. We will have the width, then, either a little greater or slightly less than half the height. If we make our width much greater than half the height we fail to accent the dominant dimension—height. We decide upon a width slightly less than half the height—say ten or eleven inches, if our height is two feet.

Good construction calls for a rail at the top and bottom, and because we have the pan to hide at the bottom we will naturally decide upon a wider rail there than anywhere else. But there is another reason for a wide rail at the bottom. If we study architectural forms we will find that a sense of stability is given any object that rests on the ground or floor by having the parts nearest the foundation either heavier, larger in dimensions or nearer together than anywhere else. Almost any building which is an example of good architecture illustrates this point. We will have the lower rail wider than the top one, then, but as yet we will not decide upon the exact widths of these rails, nor will we fix their positions. This can only be done in safety when we have decided how best to fill the open space bounded by the two corner posts and the upper and lower rails in our sketch, Fig. 3.

The problem of filling this space is really one of decoration of space area—the practical problem of paneling. If we are governed by the

principle of line harmony and recurring or re-echoing lines, these panels may be formed by using horizontal or vertical lines only, or by making use of both. Now if we wish to intensify height dimensions we will give prominence to vertical lines as in (a), Fig. 3. If, on the other hand, a feeling of greater breadth is needed we will use horizontal lines, principally, if not wholly, as in (b), Fig. 3. If the general proportions are to remain unchanged in appearance we will use both vertical and horizontal lines, as in (c) and (d), Fig. 3. We will say that we do not care to change the effect of the general proportions, and will therefore select (d), Fig. 3, as a satisfactory line arrangement.

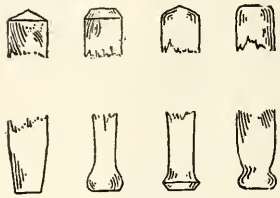


FIG. 4.

We now have before us the problem of choosing a good relation and proportion between masses and openings. We will solve this by considering carefully the three following

LAWS ON ARRANGEMENT:

First: A uniform spacing of masses and openings will seem too monotonous. This is well illustrated in the arcading of the Cathedral and Leaning Tower at Pisa.

Second: Wider masses and narrower openings at the bottom than at the top give the appearance of stability. We have a good illustration of this in the Doric columns of the Parthenon. (This is also an excellent example of the principle of the recurring or re-echoing line.)

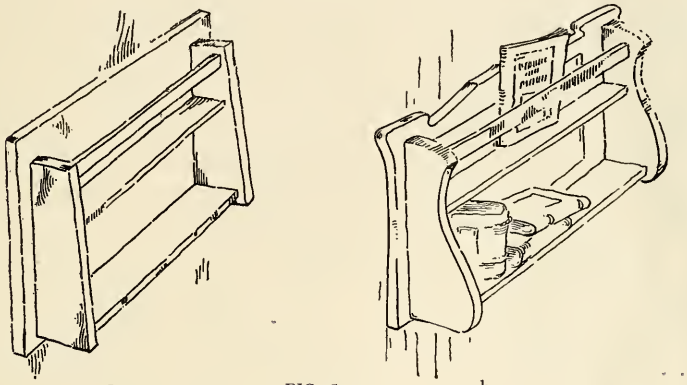
Third: The general arrangement must be such that the center of weight will be directly below the geometric center. The facade of Trinity Church in Boston, because of its rectangular shape, is a good illustration.

Our sketch (d), Fig. 3, conforms with the requirements of these three laws in the following particulars:

We have overcome monotonous spacing by making the width of the upper panel less than that of the lower one, and by giving the openings in each of these panels different widths. The feeling of stability is obtained by having a greater number of masses and wider ones at the bottom than at the top. The wide panel at the bottom also helps to give this effect. The center of weight falls below the geometric center because the middle rail is raised above the actual center in height, and because of the predominance of mass over opening in the bottom panel.

Now we may fix upon the distance from the floor to the bottom edge of the bottom rail and from the top of the corner posts to the top edge

of the top rail. A sort of composite of the rules governing our space arrangement makes us feel certain that the bottom rail should be wider than the distance between it and the floor and that the distance from the top of posts to the top rail should be less than the width of this top rail. Furthermore, the projection of the posts above the top rail should be less



a FIG. 5. b

than the projection of the posts below the bottom rail to further conform with above principles.

DETAIL STUDY OF LINES

These facts determined, our design is complete so far as we are concerned with general proportions. We must think of the details of our lines, however, before we think much about construction and decoration, although these must not have been entirely forgotten while we were filling our space areas. Have we the best lines in our design? Can we add to the artistic effect of our piece by substituting a curved line or a broken line for some of the straight ones? Or would a slight modeling of some part make a more pleasing whole? The lower edge of the bottom rail might be slightly curved as in Fig. 2. The tops of the corner posts would probably have a more finished appearance if either chamfered or rounded, Fig. 4. The bottom of these posts, too, will lose their severity if some form is given them to produce a finished effect, Fig. 4—although in this particular problem, leaving the bottom end of posts square-cut is not objectionable.

Breaking up the lines here and there to lessen the severity of our general design must be done carefully. We must not think that a chamfered corner will be equally as good as a rounded one, simply because its object is the breaking up of severe lines. We must keep in mind,

also, the principles of design that make any two parts in harmony—that make one a re-echo of the other.

A good relation of masses to openings is certainly an important feature of a problem in design, but the consideration of the detailed lines is fully as important if we hope to get an artistic product. To make this feature of our design more graphic and show the possibilities in producing pleasing results, I present the sketches (a) and (b), Fig. 5, of a wall book shelf and magazine holder. The general dimensions are the same in both, but in one the lines are changed from the straight to irregular ones by simply applying this principle of modeling.

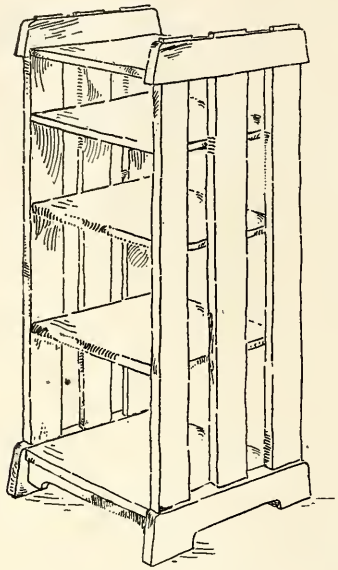


FIG. 6.

CONSTRUCTION.

Our design completed, we must next turn our attention to the construction of our piece. A drawing may be most carefully planned, but if it is poorly executed a considerable portion of its actual worth is lost. So it is with a piece of furniture. Our design may be ever so good, but its application in construction must be equally good if our highest ideal of a good piece of furniture is to be reached. In factory-made furniture we find joints made without the aid of glue or nails, and we find the supposed end of a tenon to be a piece glued or tacked on from the outside to give the appearance of the tenon extending through. Such things offend the sensibilities of the honest workman, yet in our schools, in manual training work, we are in danger of making use of some of these makeshifts and deceptive methods. Nothing can take the place of the good old-fashioned cabinet joints—the tenon-and-mortise, the tongued mitre and the groove-and-tongue panel. The substitution of the lag screw and round-headed screw for the tenon-and-mortise, the braded butt joint used instead of the headed-in or groove joint, and the screwed-on panel instead of the groove-and-tongue panel are all illustrations of this tendency to make our furniture appear well by

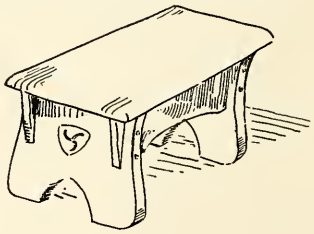


FIG. 7.

substituting something for good cabinet construction. If we are to be honest in our design let us be equally honest in our construction.

I would not imply, that these substitutions are always inappropriate. In fact, in some cases, they may be preferable to the older and recognized methods of construction. It is simply because they are easy methods of accomplishing certain ends that we are in danger of using them too much. In some pieces of severe design where good substantial furniture is produced by using some of these makeshifts for the older and, in general, better methods of construction, they are permissable on the ground of forming a part of the decoration, just as the open tenon and protruding pin may be decorative in some cases. The open tenon and protruding pin, however, are always helps toward a stronger construction. The illustrations in Figs. 6 and 7 show some of these constructive features as examples both of good construction and good decoration. Oftentimes the only decoration a piece of furniture needs is what it gets from the construction. The pinned tenon, so common on certain forms of book-racks and taborets, as shown in Fig. 8 is an illustration of this.

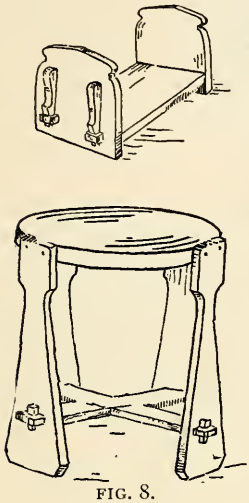


FIG. 8.

DECORATION

Just as poor taste is shown in trying to mix good proportions and lines with poor construction, so, often poor taste is exhibited in trying to decorate a good piece with some cheap carving, poor inlaying or unsympathetic coloring. Usually, aside from the good lines and decorative features of construction, a genuinely good finish is the most modest, yet withal, the best decoration one can get. To be sure a simple carving if it appropriately fills its enclosure, may add to the general appearance of a piece, Fig. 9; but the use of carving or pyrography or anything that has the appearance of being *put on* instead of being a *part of* the object, should be carefully considered with reference to the artistic and esthetic standard of the whole piece. Too often a good design well constructed, is cheapened by the attempt to decorate.

In just a few words may we not now sum up the requirements of a good piece of furniture? First of all we will have a particular use for what we are going to design, and this use will determine for us the material of construction. Then we will decide upon our general lines and proportions, being governed in doing so by three or four recognized principles in design.

We will see to it that good construction is used, and, if possible, make this construction a help to decorate our piece. Last, but not least, we will finish in such a way as to preserve the texture of the wood and give it a soft, rich color that will add to the beauty of the whole.

Let us have, as Dr. Denman Ross says, "Work produced appropriate to its purpose, good in design, and technically perfect—that is what we want."

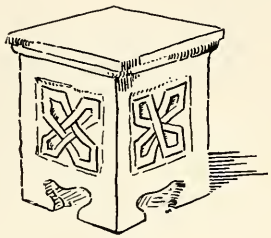


FIG. 9.

RAISED METAL WORK.[1]

AUGUSTUS F. ROSE.

METAL work has been introduced into public schools during the past few years with very gratifying results, and has proved itself to be a most valuable departure from other lines of work. In this there are possibilities for various kinds of work, such as the flat, including saw piercing and repousse, or the raised. There is something about this branch of the manual arts that appeals to pupils and holds their interest. The nature of the material, being hard enough to make some resistance and yet pliable enough to allow its being wrought into many forms, the durability of the object when completed and the variety of colors that may be obtained, especially with copper, all tend not only to make the subject interesting but also fascinating.

The necessary equipment, including benches, vises, anvils, etc., was outlined in the October 1904 number of the School Arts Book. The making of a bowl, the simplest exercise in raised work, was described in detail in the same article.

Perhaps the raised work appeals more strongly because of the many useful and artistic objects that can be made; for what school boy would not prize for years to come a porringer, a stein, or an ink pot of his own handicraft!

Assuming that the reader is familiar with the method of raising as described in the article referred to, the present treatment is confined to a detailed description of the steps necessary in developing an ink pot, an interesting exercise in raised metal.

In taking up such an exercise, naturally the first thing to think of is the design, which leads us to decide on its shape and size and also the

[1] Copyright, 1906, Augustus F. Rose.

decoration, if there is to be any. Through it all the element of construction must be kept in mind. It is very important that an ink pot should have a good broad base to prevent accidents, and that it be so constructed that the ink well may be removed. This well should be made of glass or some other material easily cleaned.

After considering the above mentioned points, and having chosen the design, we proceed to the construction. For the exercise to be described we will take a design that seems to embody the essentials for such a subject, Fig. I.

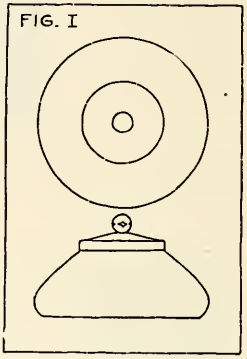


FIG. I.

We first hammer up a form, Fig. II, as described in the previous article, like the lower part of the pot inverted, Fig. III, which is nothing more than a bowl so far. A hole with a diameter a little less than the diameter of the ink well is then sawed with a piercing saw in the bottom of this bowl, as at A, Fig. III. After this a circular piece of metal is cut equal in diameter to the top of this bowl plus ¼ of an inch, and soldered * on, G. Fig. IV. By making this piece ¼ inch greater than the diameter of the bowl, the soldering process becomes much easier. After the soldering is finished, the projecting edges may be filed off to the edge of the bowl. The bowl is then inverted so that it rests on its greatest diameter, Fig. IV, and it becomes an ink pot.

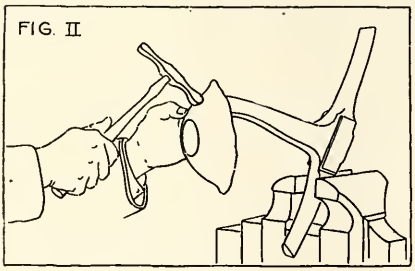


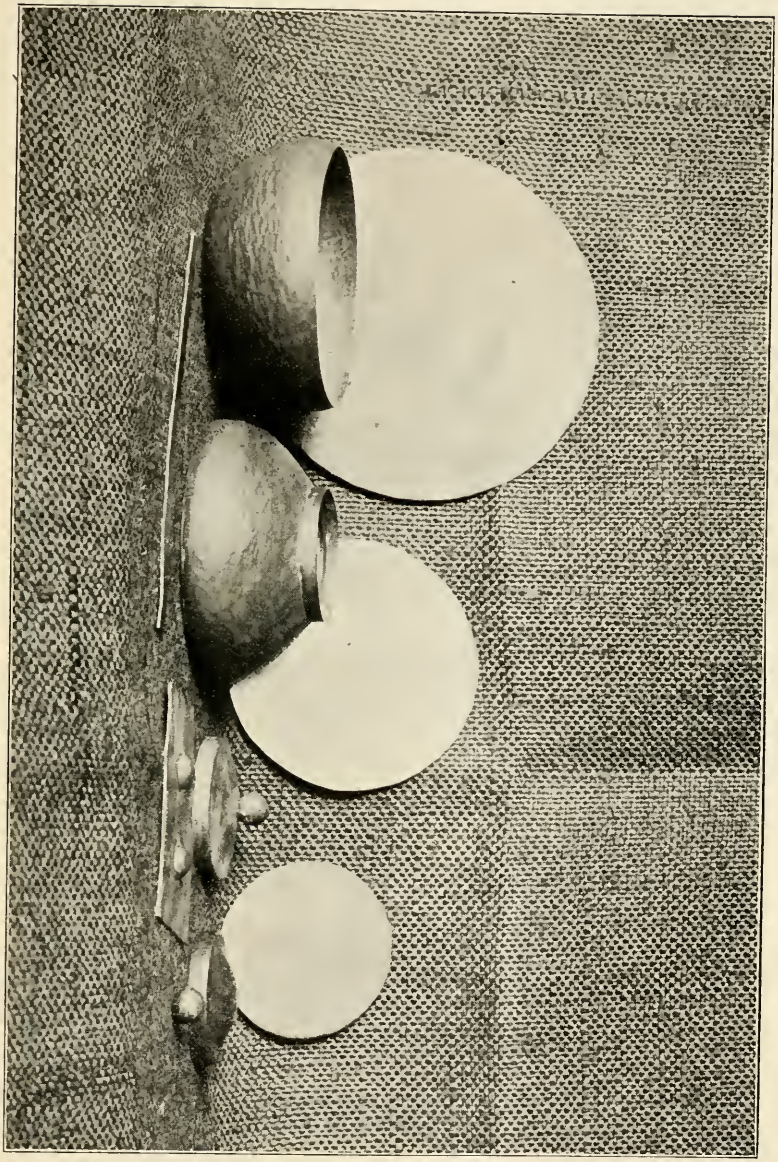
FIG. II.

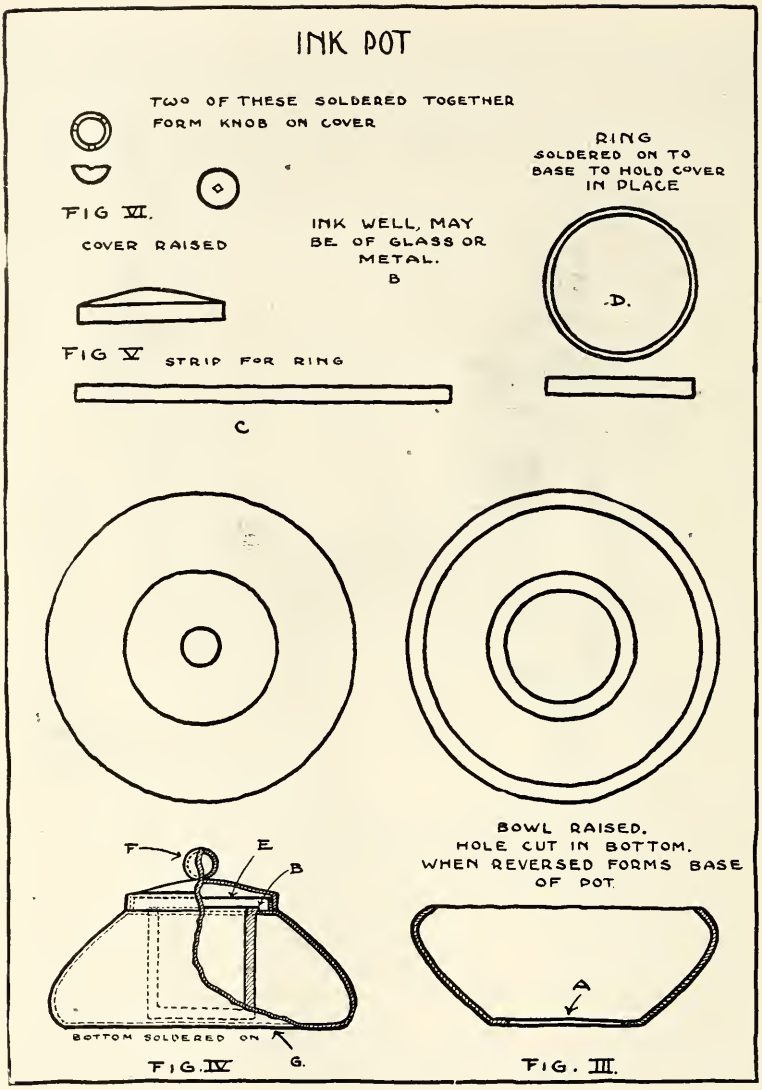
* SOLDERING.

A piece of silver solder, a slate slab such as is ordinarily used for grinding ink, a lump of borax, and a soft hair brush of some sort are all that are necessary for the process of soldering in addition to what we already have.

The pieces of metal that are to be soldered must be absolutely free from all foreign matter. To insure this the joint is scraped bright with some sharp-edge tool. Care must be taken to keep the fingers away from the joint as any moisture or greasy substance will prevent the solder from running. The best results are obtained only by being extremely careful as to cleanliness throughout the process. Being sure that the slab is perfectly clean, a little water is put in it and the lump of borax is ground around until the water becomes like thin cream.

The solder may be obtained any gauge, but about 20 answers for most purposes. After cutting the solder into pieces about 1/16 of an inch long and about the same





width, drop them into the borax that has been ground, to give them a coating of borax, and to remove any grease that may have adhered to them. Coat the surfaces that are to be soldered with the borax, being careful to get no more borax about than is necessary. Put the parts together and bind them with No. 24 iron wire, not too tightly. The pieces of solder are then lifted with the brush used for the borax or with a pair of tweezers and placed next to the edge that is to be soldered, about 1½

The cover is made by taking a circular piece of metal and raising the sides in the same way as in the bowl except that the design calls for the sides at right angles to the base, Fig. V. The curve is obtained by placing it on a sand bag and driving it out from the inside to the required height. From a strip of copper 20 guage and 3-16 inch wide, C, make a ring D, equal in diameter to the inside of the cover. Solder the ends of the ring together and, after shaping it over a circular stake, fit and solder it to the base, as shown in the section, Fig. IV, E. This keeps the cover in place. The knob on the cover is made of two hemispheres, Fig. VI, by use of the dapping block and tools, Fig. VII. The two pieces are soldered together, filed or finished about the joint, and soldered to the cover, Fig. IV, F. After dipping the different parts in the pickle†, then washing them in clean water, and doing a little filing here and there about the joints to remove surplus solder, the ink pot is ready for finishing. This may be done by polishing, bronzing or oxidizing.

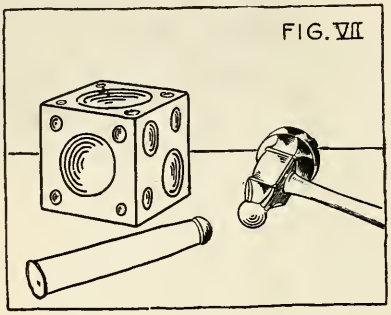


FIG. VII.

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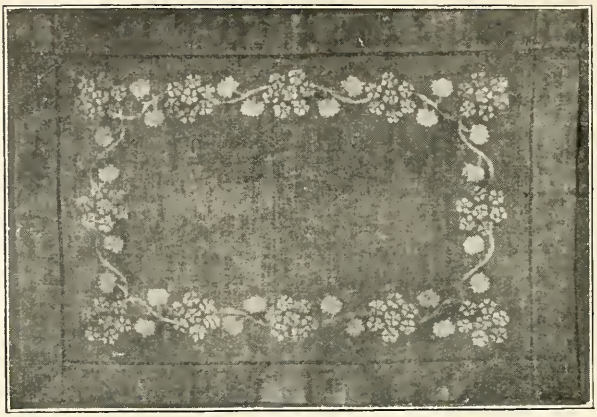
inch apart. The object is then placed on the annealing tray, which answers for soldering as well, and with the blow-pipe it is heated, very slowly at first until the water has evaporated and the borax crystallized and dissolved; the flame may then be applied more directly and the object brought to a soldering heat. If the heat is applied too quickly it will throw off the solder; and if heated hotter than is necessary it is liable to melt or burn the parts being soldered, so the process demands the closest attention from the start.

The object is then pickled, washed in clear water and dried in the sawdust. If the above directions are carefully followed good results may be expected.

† PICKLE.

A receipt for cold pickle was given in the previous article, but if one has a gas plate and a copper dish the pickle may be used hot. The object being placed in the dish with enough pickle to cover it, it is then placed over the gas plate and allowed to come to boiling heat. The pickle is then poured off and the object rinsed in clean water. By using the pickle in this way, the action is much quicker and the surface of the metal is not eaten away.



"RESIST" DYEING WITH INDIGO.

ADELAIDE MICKEL.

SEVERAL experiments in dyeing and a search for new and better ways of enriching the work in applied design and textiles at Bradley Polytechnic Institute has resulted in the use of "resist" dyeing in high-school classes. This process has been found to be a very satisfactory means of applying design to pillow covers, bags, pincushion tops, small table covers and draperies. The process is not too complex and the results are permanent and pleasing. In many respects both the results and the process are far more satisfactory than stenciling, and while the range of possible effects is more limited the quality of the result is usually superior. The range may be widened by repeating the process on the same piece of cloth, thus producing two shades of blue instead of one, or by the use of cloth that has already been dyed another color.

The materials that have been found satisfactory are cotton duck or any other heavy cotton fabric. Natural linen has also been used with some success.

In order to reserve a white spot upon cloth which is to be dyed, that spot must be covered with something that will resist the dye into which the cloth is to be placed. If a white spot or a design is desired on cloth to be dyed with indigo, the cloth should first have the design painted over with a resist made of sulphur and gum tragacanth.

To prepare this resist take a small quantity of gum tragacanth and soak it in sufficient water to form a thin paste. To this paste add sul-

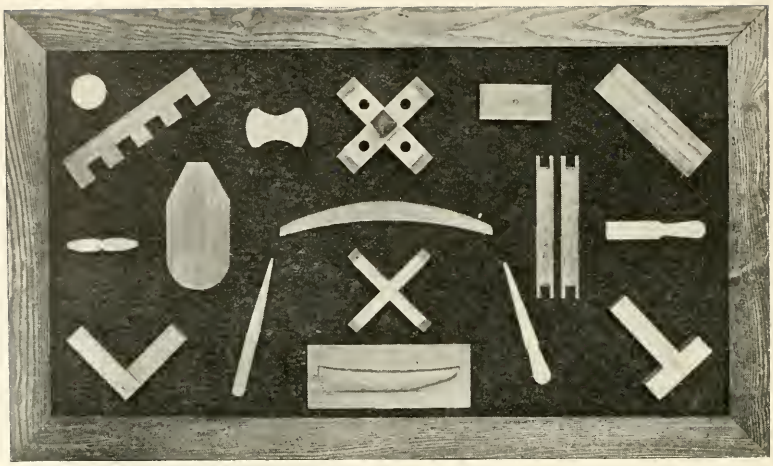
phur until it is a thick paste. The sulphur must be thoroughly mixed with the gum tragacanth and be without lumps. This resist is applied to the cloth with a brush. It must be put on evenly or the design will not be of uniform whiteness. It is then left to dry upon the cloth.

To prepare the indigo vat add to six gallons of water three ounces of pulverized indigo, six ounces of copperas and nine ounces of slaked lime. Put this in a wooden vat. A convenient size is twenty-eight inches square and ten inches deep. This liquor should be stirred frequently for twenty-four hours. It should then be allowed to stand for a day. At this stage the liquor has a greenish color and a scum has risen to the surface. The scum should be removed. The vat is now ready for use.

It is best for two people to handle the cloth in the vat, each taking hold of two corners. When it is submerged in the dye it must be kept moving all the time so as not to allow the cloth to become exposed to the air. Keep the cloth in the dye five minutes or longer, according to the shade desired.

When the design becomes distinct take it out of the vat and rinse it in a hot solution of sulphuric acid. To make this solution use one and one-half ounces of sulphuric acid to two gallons of water. Allow the cloth to stay in this solution until the cloth appears blue, then take it out and rinse it in several waters or until the water is clear.

Sew tapes on the corners of the cloth that is to be dyed, for the fingers coming in contact with the cloth discolors it when in the indigo vat.



SHOPWORK IN THE SCHOOLS OF MANHATTAN, NEW YORK CITY.

GEORGE FREDERICK STAHL.

SHOPWORK in elementary schools has been developed the country over apart from other school activities. That done in New York City was no exception to this rule until the appointment of a director whose department included the subjects of art and manual training. In 1896 this position was created and was filled by the appointment of Dr. James P. Haney, who had been at one time in charge of the manual work of one of the largest schools in the city, and later a member of the faculty of the School of Pedagogy of New York University.

At Dr. Haney's instance the methods of teaching both drawing and shopwork were reorganized and as time has elapsed there has been developed under his direction a system characterized by the intimate relation of its parts. Underlying this system is a philosophy which preaches the arts in use. It premises that they shall not be taught apart from one another or from the other subjects of the curriculum. Every means is taken to make them an integral part of the general course of study—bound up with its interests, supported by and supporting them. Models are made which serve as aids to other teachers in their work. Many of these are community projects in which several boys are engaged, and which touch upon various phases of school work in

nature study, science and number. Pupils are thus taught to realize their duty to the school; they see themselves as contributing agents to the school's success, and are made willing workers in behalf of the school's interests.

Other models are made for the home. These are decorated, and much care is taken to develop forms which shall be excellent in proportion. Staunchly constructed they last for years, and long after the boy has left the school continue to make to him their appeal of use and beauty.

The interest of both class teachers and pupils is enlisted in the work of the shop. Its service to the school brings it close to the everyday life of the class-room, while through the models made for the home, parents become interested observers of the school's work. Each exercise for the home is so far as possible planned by the boy. He makes his plan under the direction of his class teacher, and under her direction also works out both applied design and color scheme.

His work then goes to the shop and is there translated into concrete form. Strong emphasis is placed on individuality, The pupil sees his own work as differing from his neighbors, and is made to feel a pride in his own creative power. This scheme also relates many lessons in different subjects to one common interest; drawing, construction and design are seen by the pupil not as separate subjects but as means making toward a common end.

Teachers as well as pupils are encouraged to make their work individual. In addition to communal forms referred to, at least five decorated models for five different classes are required to be planned each term by each shop instructor, and the latter is urged and encouraged in this planning to make a professional study of his work. At meetings of the corps of shop instructors, papers by different members are read. The progressive teacher always has the ready sympathy of the head of the department and is encouraged in the development of any special scheme designed to further the work. Opportunity for legitimate experiment is afforded the teacher who has any definite idea he wishes to work out, while in the School Crafts Club, an organization founded by the Director, there opens to him a chance to meet instructors in the Arts from many schools and to engage in a variety of phases of professional work and discussion. Such are the means by which the teacher is kept alive and interested in his work.

THE SHOPS AND THEIR INSTRUCTORS.

Shopwork in New York City was made a part of the elementary school curriculum in 1887. One shop was then opened, and the follow-

ing year three others. At present there are forty-five in operation in the boroughs of Manhattan and The Bronx and several more in preparation. About fifteen thousand children are accommodated in these shops, the classes generally numbering from twenty-five to thirty pupils. A few shops will accommodate fifty pupils under two teachers.

For the most part the shops are located in large, well lighted and well ventilated rooms, and are generally on upper floors. Fifteen double benches with lockers form the usual equipment. The pupils taking shop-work are those in the seventh and eighth school years. In cases where the advanced pupils of the sixth year can be accommodated they are also given work with tools. Owing, however, to the size of the schools, much of the sixth year work has to be done as knifework in the class-room, the necessary equipment being carried from room to room.

The corps of shop men consists of teachers specially trained for the work. It now numbers forty men, every one of whom is a college man or a graduate of a technical or normal school. Not alone are they familiar with things mechanical, but also with the work of the general school course. They are at home in the shop and regular class room. They can draw with no little skill and each is familiar with the basic principles of design. The course deals in wood construction principally, but the teachers are as a rule familiar with the processes underlying construction in some medium other than wood. Among the members there are potters, bookbinders, and workers in metal and enamel, the corps as a whole being one of teacher craftsmen.

Unity in work done on so large a scale is essential to success. To secure this is the constant effort of the director. Conferences are held once a month, topics being assigned for discussion before these meetings. Of necessity the papers read are succinct and pointed. As many as two or three are prepared for each meeting. General discussion follows. During the term just ended the papers touched upon the artistic side of the work. The following programme of a recent meeting indicates the general scope of the discussions. (1) "Some Principles Governing the Selection of Tpye Models for Decorations." (2) Principles Un derlying the Selections of Models Suitable for Communal Work. (3) "Methods of Finishing Models in the Elementary School."

Model lessons are sometimes given before the corps. Different models in the course are discussed and lessons on these models given. Criticism follows such a model lesson. Lessons such as these serve to place the givers on their metal. They are alive to the work and put forth their best effort.

Research work of many kinds is also carried forward by committees specially drafted. During the past year a group of the men canvassed the manual training field in search of models that might be used in the elementary schools. More than three hundred were found that could be related to the work. Plates of these were made by another group and the drawings were thus made available for all members of the corps.

Besides the other means of instruction noted, exhibitions form an important educative feature. Those in the shops are either central or local. The one comprises the work of a group of schools, in which each school sends a few selected pieces. The other, the local, is held in each shop twice a year. These exhibitions serve to arouse an interest in the work among pupils and parents; to bring parents into a closer sympathy with the work and to develop pride and enthusiasm on the part of the instructor. All this they do as a means of educating the public and developing general interest in the work.

In the next issue there will be given an account of the methods and models used in the New York Schools.—EDITOR.

THE LOS ANGELES POLYTECHNIC HIGH SCHOOL

CAROLINE E. HARRIS

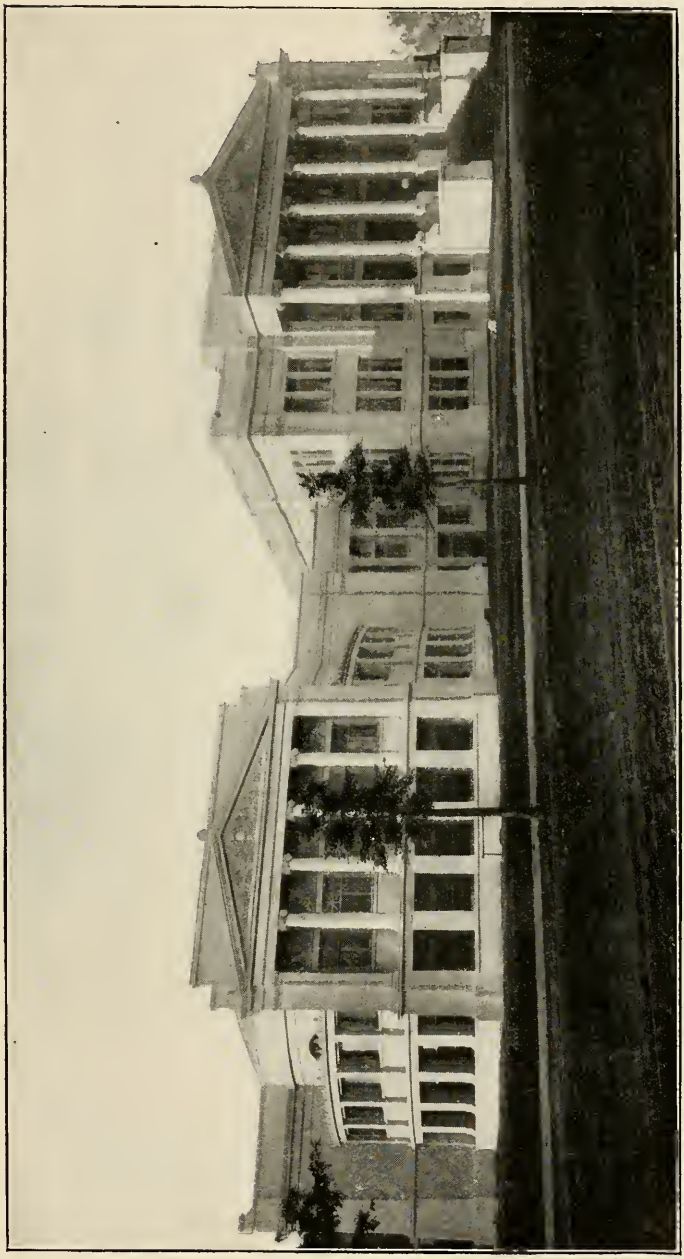
HE most complete polytechnic high school in America now stands to the credit of Los Angeles. The school consists of a handsome group of buildings covering a ground space 220x440 feet. The main building is four stories high, the assembly hall two stories, science hall two stories, and the shops one story, the height of two. Tne connection between the assembly hall and the main building is by means of a two-story arcade and between the science hall and the main building by means of a wide corridor that runs through the whole length of the science hall and the shops. All the buildings are under one roof. The buildings are of brick covered with stucco of a cream white color, and are practically fire proof.

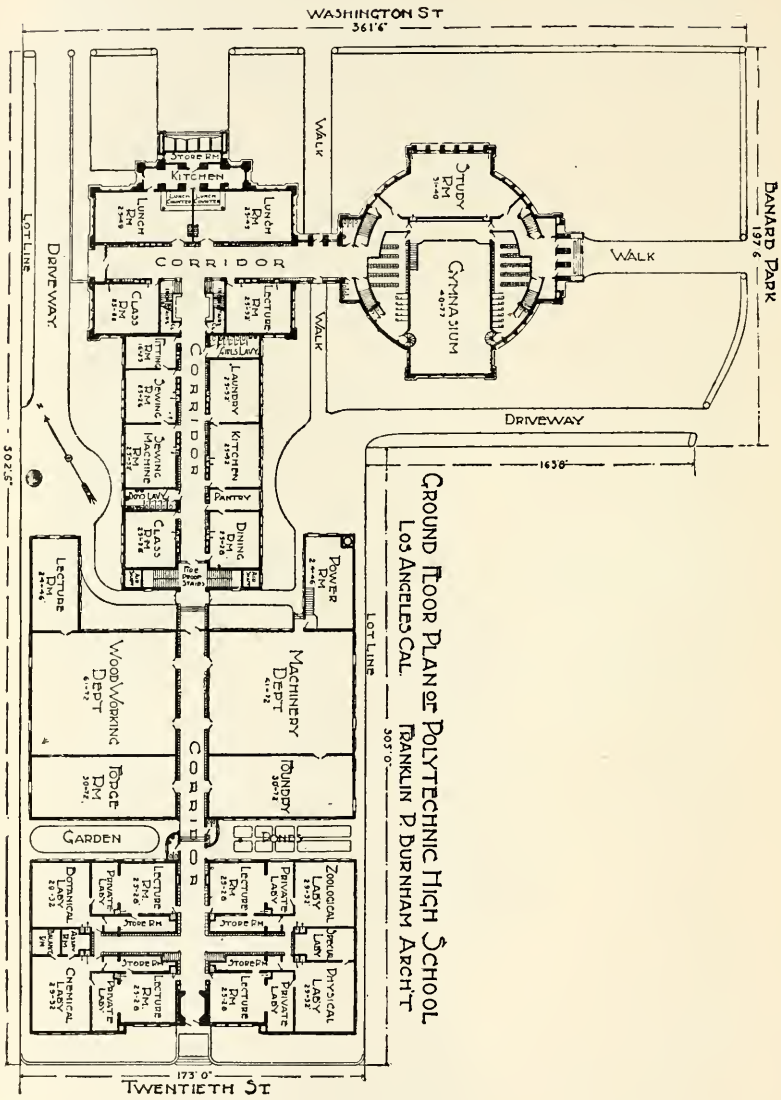
This interesting group of buildings has several unique features. One of these is an underground tunnel running the whole length of the school. This is high enough for a man to walk upright and have plenty of head room. Midway is a cross-tunnel connecting with the power house, which has two large air shafts running above the roof of the buildings. In this tunnel are located all the electric wires, the heating and ventilating mechanism, gas and water pipes. Trouble with any of these can be located very quickly. The most important use of the tunnel, however, is to furnish fresh air.

The unique feature next in importance is perhaps the roof garden. It covers almost the entire main building. It is surrounded by a wall three feet high and over two feet thick, which will be covered with growing plants and shrubs. All the ventilating shafts extend ten feet above the roof, and being huge rectangular affairs, will offer some protection from both wind and sun.

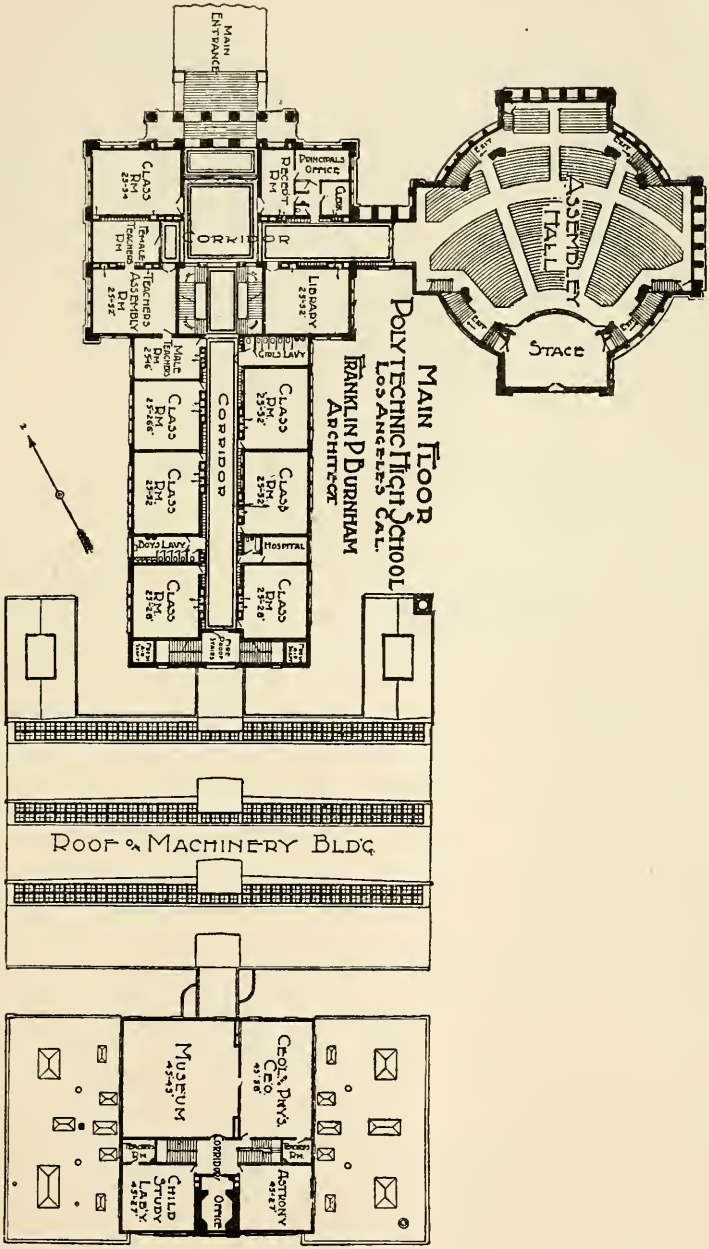
The heating and ventilating systems are of the best type. The exhaust steam from the boilers instead of being blown into the air will go through pipes in the tunnel and heat the air for the interior. A thermostat will keep the temperature even at all times, automatically turning on the cold air and shutting off the hot air or the reverse. The air will be changed throughout the entire building every seven minutes.

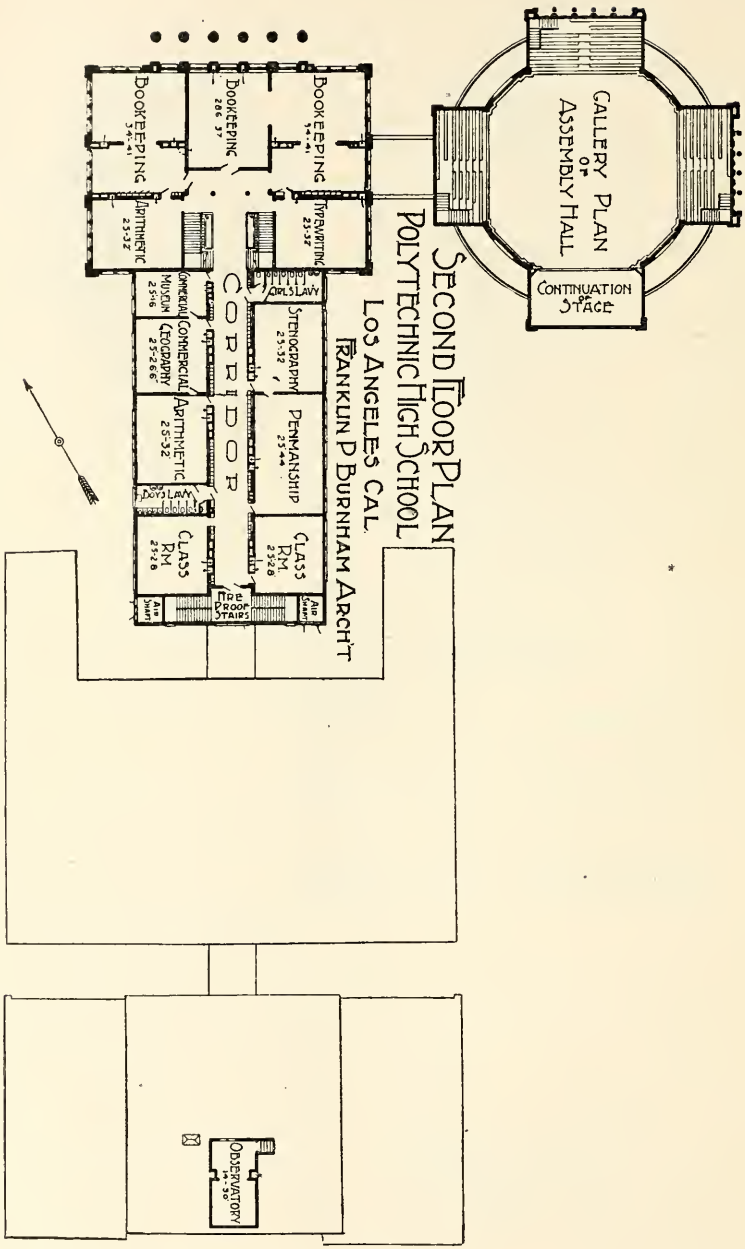
Perhaps the greatest inovation of all is the lunch department. Two large rooms and a connecting kitchen on the ground floor are equipped for furnishing healthful lunches to pupils at cost.





GROUND FLOOR PLAN OF POLYTECHNIC HIGH SCHOOL
LOS ANGELES CAL. FRANKLIN P. BURNHAM ARCH'T


MAIN ENTRANCE
CLASS RM 23-34
PRINCIPALS OFFICE
RECEPT. RM
CORRIDOR
ASSEMBLY HALL
STAGE
LIBRARY 23-32
TEACHERS ASSEMBLY RM 25-32
MALE TEACHERS
GIRLS LAVY
CLASS RM 25-26
CLASS RM 23-32
CORRIDOR
BOYS LAVY
HOSPITAL
CLASS RM 23-28
MAIN FLOOR
POLYTECHNIC HIGH SCHOOL
LOS ANGELES CAL.
FRANKLIN P DURNHAM
ARCHITECT
ROOF & MACHINERY BLD'G
MUSEUM 43-45
CEOL & PHYS. GEO. 43-38
CORRIDOR
OFFICE
CHILD STUDY LAB'Y. 43-47
ASTRONOMY 43-47


SECOND FLOOR PLAN
POLYTECHNIC HIGH SCHOOL
LOS ANGELES CAL.
FRANKLIN P BURNHAM ARCH'T
GALLERY OF ASSEMBLY HALL
CONTINUATION STAGE
BOOKEEPING
BOOKEEPING
BOOKEEPING
TYPEWRITING
ARITHMETIC
GIRLS LAVY
CORRIDOR
STENOGRAPHY
COMMERCIAL GEOGRAPHY
COMMERCIAL MUSEUM
PENMANSHIP
ARITHMETIC
CLASS RM
CLASS RM
BOYS LAV
FIRE PROOF STAIRS
OBSERVATORY

The entire ground floor of the main building is devoted to domestic science. The second floor is for recitation rooms, teachers' rooms and principals' offices and the office of the clerk who has charge of the electric connection with all the rooms in the entire school. The third floor is devoted to commercial work and history. The draughting department is on the fourth floor between the front and the roof garden and is lighted from the ceiling, the windows facing north.

Science Hall has on the first floor the departments of zoology, botany, chemistry and physics. Each department has a large recitation room, and a teacher's private laboratory. There are also storerooms for material, and a dark room for photography. On the second floor are the departments of assay, astronomy and physical geography. The striking feature of this floor is a large revolving observatory, with all arrangements for installing a telescope of great power.

The woodshop will be turned over to the pupils perfectly bare, aside from tools. They will build their own temporary benches under instruction and later permanent benches. The wood shop, machine shop, forge and foundry are all splendidly lighted from the roof facing the north.

In a space between the shops and Science Hall are eight large acquariums for experiments of various kinds.

The most generous feature of the whole building is the assembly hall, capable of seating 1600 people. The entire auditorium is a steel dome, surrounded by large alcove galleries on three sides and the stage on the fourth. There are four entrances by means of stairways to the ground floor but the main one is a wide corridor leading from the second floor of the main building. The gymnasium is under the auditorium.

The school has opened with 1050 pupils, and a corps of twenty-eight teachers. J. H. Francis is principal. The course of study will be arranged for two classes of pupils, those who are preparing for the university and those who are not. The latter class will be prepared to go into their chosen work, or to take up a post graduate course in a technical school.

The cost of the building and equipment is $300,000. Equipment will cost $100,000 and buildings and land $200,000.

EDITORIAL.

Industrial Education

Among our various educational problems there is one which must come to demand far more attention than it now receives. It is the problem of industrial education. Theoretically our educational system rests on the economic doctrine that it is to the profit of the state to train, so far as possible, each citizen to his highest efficiency, to train him to produce his best. In practice, however, it is only those pupils who can square with certain scholastic standards who are permitted, after their elementary schooling to share in the state's bounty.

Our secondary schools have been differentiated along various lines dependent on the tastes and mental bent of the students who seek them but there has as yet been no differentiation based on the varying mental capacity of pupils of the high-school age. The entering student who cannot by orthodox cramming be cold drawn to the length required by the high school examiner, is directed to step aside that the tape may be applied to his neighbor next in line.

If the latter measures up to the desired mental stature he is admitted and is shown the promised land, distant a four year's voyage across a pedagogic sea. Assuming that he has classical, scientific, commercial or technical leanings he is assured plain sailing and a charted course, but woe to him if he confesses to but modest capacity for language, science and mathematics and hints that he would like to learn the rudiments of a trade. He is given to understand that the bounty of the state is not for such as he, and if he becomes insistent, is taken aside and admonished that the only place in which the state teaches trades is in the penitentary or reform school.

Thus for the successful candidate it is 'culture or nothing' but what of his brother without the gate. He, alas, has been driven away to join that great army of graduates who yearly leave the elementary schools anxious to become skilled workmen but who find themselves denied other training than that offered in the desultory and indifferent apprenticeship of the shops. Many of these pupils—a great many, would willingly undertake two years additional school work if such work were but suited to their capacity, and designed to prepare them directly for the industrial life they wish to lead.

Nowhere in the educational field is there a condition more plainly demanding attention. So far as industrial education is concerned we are still at sea. There is as yet no demand that the secondary schoolman cease to occupy himself entirely with the business of 'enriching' courses of 'strong cultural value' and set himself to solving the problem of holding in school and training through most impressionable years the host of pupils now turned adrift at the dawn of adolescence.

The error made, has a grave economic significance and it will be economic pressure that will right it. If this country is to prosper, the American workman who is to compete with his state-trained brother across the seas, must have a sounder foundation for his work than that afforded in the benumbing practice of the modern factory. Continuation schools, correspondence schools and private enterprise may do a little, but the problem as a whole will remain unsolved until adequate measures have been taken to bring the would-be artisan within the quickening influence of the industrial school, there to have deeply stamped into his mental make-up a right attitude towards his work, there to be given a grounding in essential processes and an insight into the possibilities of his own development along creative lines.

In the breast of some high-school partisans the term 'industrial secondary school' will arouse antagonism. Guardians of the fame of 'the high school system' the mere word industrial in such connection will appear of vicious import. Yet such opposition is not warranted. The proposed school will nowhere trench on the high school as it now stands. It appeals indeed to those to whom the present high school denies itself—and it must surely come. That state is blind which cannot see wherein lies its great gain in offering equal opportunity as well to its craftsmen as to its wards who are to labor in professional fields. A fairer balance must be struck. —*H.*

One test of an elementary course in the Arts is its adaptability. A good course has a high coefficient of elasticity.

Some constructed forms demand decoration, some permit it—and some have decoration thrust upon them.

Design should be taught as a living language, principles as principles make it a dead one.

ASSOCIATIONS

THE ILLINOIS MANUAL ARTS ASSOCIATION.

On Friday and Saturday, February 16 and 17, at the University of Illinois, Urbana, the Illinois Manual Arts Association held its third annual meeting, a meeting most successful and profitable in every way. Thursday afternoon the advance guard arrived followed by others that evening and the next morning, so that by midday Friday nearly all the out-of-town visitors were on hand to make the most of the opportunity afforded for visiting the University. The Illinois Schoolmasters' Club was in session at the same time but the resources of the University enabled it to extend a cordial welcome to both organizations and both were entertained acceptably.

Friday morning was spent in visiting the various buildings and in inspecting the exhibits brought by members and the local exhibit arranged in the exhibit room of the Wood Shops and the exhibit of the department of art and design in University Hall. At two o'clock in the lecture room of the Wood Shops the formal program began with an address on

"THE MANUAL ARTS IN THE UNIVERSITY OF ILLINOIS"

By Charles F. Perrry, Assistant Professor of Machine Construction. This address gave a most interesting insight into the organization of the mechanical department shops to provide the necessary laboratory work for the various engineering courses. There was a great deal of ground to be covered in the forty-five minutes allowed for this purpose, but by the aid of a number of illustrative pieces of work the time was skilfully used to give a very good general idea of the character of the work undertaken in the various shops and of the manner in which the different shops are related, as the pattern-making shop to the foundry, the foundry to the machine shop, and so on, and all the shops to the drafting room.

At the close of the address the members of the Association were taken by Professor Perry and assistants upon a tour of inspection through the mechanical department. The trip included visits to the metal shops, wood shops, heating plant, pumping station, foundry, hydraulic laboratory, testing laboratory, electrical laboratory, mechanical engineering laboratory and Engineering Hall. This feature of the meeting was thoroughly enjoyed by everyone and proved a revelation to some who were not aware of the extent of the University's facilities.

At five-thirty o'clock the members began to assemble in the parlors of the Hotel Beardsley, Champaign, for what is considered one of the most pleasing features of the annual meeting, the "social hour" just preceding the banquet. A few minutes before seven o'clock the annual banquet was served in the spacious dining-room of the hotel. Forty members and guests were present, and were seated at one long table decorated with red carnations. The management of the hotel gave evidence in various ways of a solicitude for the success of the occasion, not the least of which was in the serving of an excellent dinner of eight courses.

After dinner President Bennett called the Association to order and introduced Professor L. P. Breckenridge and Professor E. G. Dexter of the University of

Illinois, who, in the enforced absence of President James, expressed to the Association in a very happy way the University's welcome which had already been made practically evident in so many ways during the day.

President Bennett then introduced the speaker of the evening, Mr. William H. Hatch, Superintendent of Public Schools, Oak Park, Illinois, who addressed the Association on

"THE SEVEN LAMPS OF TEACHING."

Mr. Hatch said in part: "The natural tendency of the work in which you are engaged is to emphasize the material. The value of the results secured is too often measured by the finish of the object constructed. But we are coming to realize more fully that the motive back of the act is vital to the best results..... Just before Christmas a sixth grade boy brought to me a very fine piece of work that he had just completed. It was a card case of leather neatly decorated with his own design. After complimenting him on his good work, I asked, 'What are you going to do with this?" The bright happy look in his eyes told me more than his words when he said, 'It is for my mother.'

"There is something more than mere sentiment in this. In the evolution of the human race we are passing above the reign of the law of the survival of the fittest in the sense that the strong crowd the weak to the wall and survive through physical supremacy. Not only self-helpfulness but a desire to help others is considered important in the development of character..... In the work in which we are engaged let us remember that the material with which we are dealing in the shop, the objects we are constructing, are not final, but only a means to a higher end. They are simply to aid us in what writers of the present time are wont to call the 'socialization of the child.'

"In his series of charming essays entitled 'The Seven Lamps of Architecture,' Ruskin has shown to exist so much of spiritual significance even in the material construction of great buildings, that I have made bold to borrow from him the title for our topic of the evening and speak to you upon what we may please to call the 'Seven Lamps of Teaching.'

"The Lamp of Sacrifice. As one wanders through the ruins and the remains of the work of the builders of the middle ages in the great cathedrals of England, he is impressed with the great diversity of structure and decoration. Hardly two windows are of the same pattern. Variety on every hand shows that the workmen were given their problems and left to work out their own ideas within certain general limitations. The workman thus put himself into his work. Each workman became an artist and his work is of lasting value to the degree to which he put himself into it.

"If this be true in dealing with wood and stone, how much more true it must be in dealing with the living soul. Into his work the teacher must, like the workmen of old, put himself. Self-sacrifice is an essential element in the work of the teacher. He is a builder who is putting himself into that which he constructs.

"The Lamp of Truth. Ruskin lays down the law that all material and structure must tell the truth. Stone should always be known to be stone, iron to be iron, wood to be wood, defects and weaknesses should not be covered up, but eradicated. ..... How often in your work is a piece handed back to the boy with the remark, 'It is not true.' Does this sink deeper into his consciousness than the mere thought of the project upon which he is at work? Or does he relate it to the lines he is marking out for his acts outside the shop? 'Hew to the line' is a precept with a deeper

meaning than that given by the mere artisan in wood. 'To thine ownself be true, and it follows, as the night the day, thou canst not be false to any man.'

"The Lamp of Power. The organization of the English nation into a government that was to become the great power in the world that it now is, was accomplished by the force and genius brought across the channel by the Normans. The same element of strength and power is exemplified in the massive structure of the great cathedrals built in the twelfth century..... These seem to me fitting types in material architecture of what we as builders of the soul would wish to come from our hands. Yes, builders are you, not alone of shelves, and taborets and cabinets, but of human lives. You work not alone with wood and metals, you work with the stuff out of which men are made, with the things of the spirit. It is of vital importance that our construction be such that when 'the rain descends and the floods come, and the winds blow and beat upon the structure, it will not fall, for it will be founded upon the rock.'

"The Lamp of Beauty. It is difficult to treat the subject of beauty, whether it be of a material structure or of a human life, apart from the other topics that we have placed in our list. I think, however, that when you consider in what the beauty of a complete structure consists you will feel the importance of a consideration of this as a separate topic. A building may contain all the other elements that we are considering under our seven lamps and yet not be beautiful as a whole. The fundamental element of beauty lies in proportion. A group of objects of the same importance does not make a satisfactory picture..... In the same way not all good and great men are pleasant and agreeable to meet. There is always a danger of a development of certain powers to the *exclusion* of others that causes an undue contrast..... Proportion in character does not demand a uniform development of the powers; but, if the spire of the great building towers above all the other parts there must be a good substructure to balance the great spire. While we want the all-around development of character, the law of beauty gives room for the development of special powers.

"Continue to feel, then, teachers of manual training, that you are doing a good thing for every boy who shows marked ability in mechanics or art, when you encourage him to develop his specialty. You are aiding him to do more for himself and more for his world.

"The Lamp of Life. There is a certain Gothic church near Rouen, France, poor in general composition, but excessively rich in detail, whose builders 'hated it and were glad when it was done.' In contrast to this consider Melrose Abbey..... In its contemplation we are filled with the impression of throbbing life back of it all. The men who worked on the building at Rouen and produced the cold and stiff results were mere artisans and their work was like that of a machine without warmth or life. Those who built Melrose were artists and put into their work that which in all time will appeal to the soul.

"To the latter class the teacher must belong. There are teachers, I am sorry to say, who are mere artisans. Their work is accurate, the outward showing is good, the pupils are orderly, the work directed by the teacher is done and, perhaps, well done; but all ends there. There is no vital touch between him and his pupils. He is teaching his subject and not his boys. 'We are not sent into the world to do anything into which we cannot put our hearts.' The teacher, then, must be more than

a mere artisan. He must rise into the realms of the true artist if he will make himself worthy of his high calling.

"At this point I propose to take a liberty with Mr. Ruskin's list and substitute for his 'Lamp of Memory'

"The Lamp of Industry. He who enters upon the work of teaching with the thought that it will be a life of ease or give him more of leisure than other occupations, will be doomed to disappointment..... Natural fitness for the work is fundamental, special preparation is essential, a good place to work and abundant appliances are important, but in the last analysis the success of the school depends upon the teacher; and the success of the teacher depends very largely upon his willingness to work. I believe more and more in the genius of hard work.

"The Lamp of Obedience. Order which is said to be Heaven's first law is simply a result of obedience to law. He is most nearly free who renders fullest obedience to the laws, material or spiritual, under which he lives; for then only is he untrammeled by the punishment or disaster that follows violation of law. The fundamental law of life is obedience. Every movement of a boy in a shop, handling the tools and dealing with diverse materials, is subject to well defined laws; and the more promptly he learns obedience to them, the sooner will he be able to accomplish the end he has in view. A great lesson is learned when he bows before the law of inert matter and sees that only in yielding can he conquer. This aids in the important lesson of learning obedience to constituted authority and the higher laws of life. In no nation nor in any time is there greater need of learning such obedience than here and now; and while the school can do only a part in the remedy of the evil, it can exert a powerful influence by teaching the child that obedience is fundamental. 'No person has properly developed moral character until there has been a transfer of the seat of authority from without to within.'"

Mr. Hatch had been announced as having come with a "fatherly talk," and "the boys" were unanimous in declaring that the "paternal admonitions" had been most appropriately conceived and helpfully administered.

The President's Address was delivered by Charles A. Bennett, Bradley Polytechnic Institute, Peoria; subject: "One of Our Problems." This address was a searching and suggestive discussion of a chapter in the philosophy of manual training. At the business meeting the Association requested by a unanimous vote that this address be published in the MANUAL TRAINING MAGAZINE; accordingly it will be found printed in full in this number, pages 121 to 127.

The secretary's report was then presented, including the reading of the minutes of the previous meeting and an outline of the work accomplished by the Association through its executive committee.

The following candidates, as recommended by the executive committee, were elected to membership: R. F. Beardsley, president, American Manual Training School, Chicago; Channing W. Gilson, supervisor of manual training, Public Schools, Rock Island; P. J. Hawk, supervisor of manual training, public high school, Fairbury; L. A. Herr, supervisor of manual training, public schools, Vincennes, Indiana; Miss Anna Johnson, assistant principal, Chaddock Boys' School, Quincy; Frank W. Kendall, director of manual training, LaSalle-Peru Township High School, LaSalle; M. L. Laubach, professor of manual training, state normal school, Terre Haute, Indiana; Fred H. Rankin, superintendent agricultural college extension, University of Illinois; Frank H. Selden, instructor of shopwork and

drawing, University High School, University of Chicago; Seymour L. Smith, director of manual training, state normal school, DeKalb.

The following members were elected by ballot to serve as committee on nominations to report at the Saturday morning sesssion: Louis A. Bacon, Indianapolis, Indiana; Douglas Donaldson, Joliet; C. S. VanDeusen, Peoria.

Upon motion the president appointed the committee on resolutions, as follows: E. H. Sheldon, Chicago; Miss C. Curtis Townsend, Indianapolis; Louis A. Bacon.

Upon motion, the Association instructed the executive committee to reorganize all standing committees after each annual meeting.

After informal discussion of various matters the Friday evening session adjourned at 10:28 p.m. to meet Saturday at 8:30 a.m.

SATURDAY MORNING SESSION

With the exception of one paper the program of the morning session was taken up with reports of committees. The first to report was the committee on "Enrichment of the Course of Study," consisting of, H. G. Hatch. Rockford, chairman, who prepared and presented the report; W. F. Raymond, Peoria; S. J. Work, Elgin; Miss Anna G. Brown, Jacksonville; A. C. Bloodgood, Aurora; Douglas Donaldson, Joliet. The committee had prepared a list of questions bearing on these problems and sent the same to workers all over the state with request for replies. The substance of these replies gave a view of the present practice in the schools. The report then went on to discuss "the true principal of enrichment" which "lies in a proper apportionment of exercises within the bounds of a moderate variety of tools, materials, and processes." General suggestions were offered as to the variety of work suitable for the manual training shop in the 7th, 8th, 9th and 10th years of school. The time for discussion of the report was limited.

Louis A. Bacon, supervisor of manual training for elementary schools, Indianapolis, Indiana, read a very interesting paper on "Cooperative Efforts of Art and Manual Training Supervisors." Mr. Bacon's paper was illustrated by a number of charts and a quantity of work brought from the shops under his supervision. The Indianapolis schools have been attracting a good deal of attention recently by the excellence of the results accomplished through the combined and harmonious efforts of the art and manual training departments, The members of the Association listened to Mr. Bacon's paper and inspected the examples of work with more than usual interest and the paper was followed by a lively discussion.

The next number on the program should have been a report from the committee on "Manual Training Equipments:" C. H. Bailey, Cedar Falls, Iowa, chairman; T. L. Adams, Bloomington; H. S. Dickinson, Moline. But as the discussion of Mr. Bacon's paper had taken more time than had been anticipated, it was decided, after consultation with Mr. Dickinson, the only member of the equipments committee present, not to call for the report of this committee at the meeting but to request that it be prepared for publication as an article in the MANUAL TRAINING MAGAZINE.

"Methods of Wood Finishing is a subject to which Clinton S. VanDeusen, Bradley Institute, Peoria, has been giving a great deal of time and careful investigation, and his report of progress to date made a very interesting feature of the session. Mr. VanDeusen described his experiments with various stains and finishes and illustrated the effects of several different formulas by pieces of work. Quite a number

of very charming color effects were shown on chestnut, sycamore, red gum, and cypress. This paper was also followed by animated discussion.

The last number on the program was the report of the committee on "Manual Training for Rural Schools:" W. T. Bawden, Normal, chairman; A. P. Laughlin, LaGrange; L. H. Burch, Macomb; F. W. Kendall. LaSalle; F. H. Rankin, Urbana. The report reviewed briefly the work that had been done on this topic before the present committee took hold of it, and then described the plan upon which the committee is now working. Suggestions on mechanical drawing and woodworking had been offered by Mr. Laughlin, and Mr. Kendall had prepared an outline in detail of work for the first eight years. Letters were read from two teachers who had introduced and carried on different lines of handwork in rural schools. The methods used and the results accomplished were described in such a way as to help clear up conceptions as to what may be undertaken and what may not. The report was accompanied by an interesting exhibit of work from a rural school brought by assistant superintendent, William Brigham, McLean County.

Following the program there was held the regular business meeting. The question was brought up again of publishing the results of investigations carried on by the members. After discussion it was voted that the executive committee be authorized to organize an "editorial board" in accordance with the plan suggested in the president's address at the 1905 meeting. [See Manual Training Magazine, Volume VI., pp. 229-235.]

The following candidates, as recommended by the executive committee, were elected to membership: John Lord Bacon, instructor in forge work, Lewis Institute, Chicago; W. C. Garretson, principal, Mont Rose School, Terre Haute, Indiana; William H. Jones, director of manual training, James Millikin University, Decatur; George A. Ross, instructor in woodworking, Lewis Institute, Chicago; Miss Agnes Rourke, principal, Central School, Lincoln, Illinois.

The report of the nominating committee was adopted and the following officers were elected for the ensuing year: President, Professor Frank Forrest Frederick University of Illinois; Vice-President, Clarence E. DuPuy, superintendent of shopwork, Lewis Institute, Chicago; Secretary-Treasurer, William T. Bawden, Normal.

It was decided to accept the invitation of Director Carman and to hold the next meeting at Lewis Institute, Chicago.

Mr. E. H. Sheldon, Chicago, chairman of committee, reported and recommended the adoption of resolutions of appreciation of the hospitality accorded the Association by the University of Illinois and of the appreciation of the efficient service rendered by the retiring executive committee. The report af the committee was adopted.

After the transaction of other necessary business the meeting adjourned at 12:30 p.m. WILLIAM T. BAWDEN.

SCHOOL CRAFTS CLUB

The presence of ladies at the January meeting of the Club was a novel feature, and a very pleasant and profitable evening was the result. Dinner was served at 6:30, after which the program consisting of a discussion of the Arts and Crafts movement, was taken up, Albert W. Garritt in the chair.

Mr. Garritt said that the movement had the effect of elevating public taste. In some towns the interest of the whole community had been awakened, and many an

amateur had found fascinating employment in the production of articles of beauty and usefulness.

Miss Martha S. Bensley, leading the discussion, took the ground that modern conditions made the use of machinery necessary in most of our manufactures. The demand could not be adequately supplied without it. In many lines the machine made article is better than the hand made, and the reproduction of works of art through the use of machinery places many beautiful things within the reach of people who would otherwise be obliged to do without them. The work of the arts and crafts can never take the place of the machine, but is of value to set the pace for the machine in beauty and perfection of design and finish.

Miss Amy M. Hicks, of the Arts and Crafts Guild of New York, took a somewhat different view of the subject. The work of the craftsman was considered in its effects on the worker and its effects on social life. The worker does the work because he loves to do it. It is to him a means of self-expression. The machinist may express himself in making a machine or the artist in making a picture. Through self-expression he is able to help social conditions. If we would bring society to a state of perfection we must make the unit perfect.

The machine has its place, but it should not come into competition with hand work. There is no competition in the arts and crafts movement. Each worker works out his own individuality. The man who controls a machine which will turn out trays by the hundred is of no more importance than the man who makes a single tray. Art has stood as a thing apart. It is the part of the craftsman to make things of genuine service, suitable for their use, and to make them beautiful, thus restoring art to its rightful place in relation to the production of useful things.

William L. Price of the Rose Valley Shops approved of the use of machinery in its place, but when the machine ceased to be a tool—when the man worked the machine without thought—then its use became harmful; the man became a machine. Primitive man was weak. Through the construction of things which he found necessary he began to reason and to grow, and was saved. He had become a creator. In these days we seem to have forgotten this. We think all we have to do is to get money and go out and *buy* what we want to use, and go to others to learn what we want to know. Development will not come through information, but through creative thought.

Our industrial methods are producing few designers and many button-pushers. The strength of the arts and crafts movement is that people do not want things made all alike. The product must exhibit the individuality of the producer. Our present industrial system is working out its own destruction. The foremen of our factories are men who have themselves been thorough workmen, but the system is not producing men capable of taking their places.

The arts and crafts movement is prophetic of a new condition in which men will take up the work where their fathers left off, not for wealth, but to supply their needs. When each man voluntarily does the biggest thing he can for the community, that is true democracy.

Dr. Haney was in favor of encouraging the arts and crafts movement. It is the impulse of the individual to do something which he can stamp as his own that carries the world along. The artist and the craftsman feel this impulse, each in his degree, and in the furtherance of this creative spirit lies the value of the movement.

Another phase of the question was presented by Professor Richards, who showed that social progress depends upon industrial progress, and industrial progress upon the use of machinery, while the freedom of effort in the arts and crafts tends to the development of the individual. Thus we have industrial development on the one hand and individual development on the other, the two not being antagonistic, but rather complementary.

Mr. Noyes spoke of the influence of the arts and crafts movement on industry in general, comparing it to the possible influence of the revival of Gaelic upon the world language of the future. The promoters of the arts and crafts believe that through the highly systematized methods of modern industry we are losing the appreciation of beauty and the feeling of pleasure in producing things of honest construction and graceful design. As a reflex influence the movement is valuable.

—W. F. Vroom.

MANUAL ARTS SECTION

WASHINGTON EDUCATIONAL ASSOCIATION

The first official gathering in this state, of the drawing and manual-training teachers as an organized body occurred during the Christmas holidays at North Yakima. The Manual Arts Section was made a part of the State Educational Association which held its 19th annual meeting at the above time and place.

The topic for this first meeting, "The Place of Drawing and Manual Training in the School: Why? and How?" was selected to be of interest to other teachers and school officers than those directly engaged in this work.

"Drawing and Art Instruction: Why?" was fully answered by Miss Small, supervisor of drawing, Seattle. The speaker believed that too often in public school drawing, "we have *let* the children draw things, instead of teaching the principles underlying good art knowledge and feeling." "Be sure that what the child would *like* to do harmonizes with what he had *best* do." Right seeing and technique must be taught, and taught constantly and vigorously, but as the means appropriate to the true end, the dominant purpose being a knowledge and apprehension of the beautiful."

"How?" was answered from the standpoint of the grade teacher by Miss Cameron of Tacoma. Her paper was illustrated by the regular class work of her pupils, third and fourth grade, completed under the usual conditions of a crowded classroom, limited facilities, and time. The development shown in the work, as well as the skill acquired in its execution could only have been possible when the teacher understood what her paper emphasized—that interest is fundamental.

Miss Richter, supervisor of drawing in three country districts in King County gave a very practical talk with her brush and four-color box, demonstrating how the country teacher could, with limited equipment teach drawing with brush and colors. She quickly executed a series of color sketches illustrating how this could be accomplished while the child was all intent in telling a story in picture of field and stream, and of his own experiences in school and at home.

Mr. Leedham, of the Seattle High School, gave evidence from his own experience showing why manual training should be in every school in Washington. The value to the boy of discovering by experience that accuracy is essential to doing things well; that perseverance in accomplishing his purpose because of an unusual interest in handwork, may serve to awaken perseverence in other things; that manual

training will hold the boy in school at a critical time in his development: these points were emphasized by the speaker.

The discussion of "how" to accomplish this had to be omitted on account of the absence of the speakers assigned for this part of the discussion. The time, however, was very profitably occupied by Dr. M. V. O'Shea, of the University of Wisconsin, who spoke of manual training and drawing from the psychologists point of view.

"Psychologically the more you know about an object, the more impossible for you to represent it. What is seen is not one-fifth of what the mind understands about it. Knowledge gained through all the other avenues than the eyes affects what one sees and modifies it, consequently it is impossible to represent it." "Drawing and manual training cannot be correlated for the knowledge of form precludes the possibility of representing it.." The eyes cannot see the third dimension." These were some of the statements made by Dr. O'Shea. Many of his hearers wonder how to reconcile his statements with those made by previous speakers, who desired closer correlation and who recommended that the teacher and child both get closer to nature, to enable them to better represent what they saw and felt. Dr. O'Shea left no doubt as to his meaning when he said, "It is wrong to emphasize technique. The child can be taught technique only when he feels the need for it. To require a child to go through a series of enforced exercises very soon stifles all power of expression for which the technique is to serve. The child should be given more free play for self-expression. He symbolizes what he sees. Drawing is an avenue for the expression of an idea or a purpose."

In the discussion following Dr. O'Shea's address the point was made that drawing, in developing taste and a desire for beauty in form and proportion, should be more closely correlated with all forms of handwork, that these ideals may be realized through a knowledge of the limitations of the materials and the purposes they are to serve. Also that the older pupil at least, would probably appreciate with growing interest and not waining, as often happens, the need of drawing and design, if these subjects were taught, as a means to an end, in some object of service of the pupils' own creation and not as an end in themselves.

The promise of the future for the Manual Arts Sectien is very good. The unanimous vote of the Association, later, made it a permanent department of that body and in another year it will be represented in the Educational Council.

B. W. JOHNSON, Seattle.

CURRENT ITEMS.

CLINTON S. VANDEUSEN.

THE program of the Manual Training Department of the National Educational Association to be held at San Francisco, Cal., July 9-13, will include the following topics and speakers: "The Development of an Adequate Course of Study in Manual Training for Elementary Schools," discussed from the point of view of (a) The Art Teacher, (speaker to be announced.) (b) The Manual Training Supervisor, L. H. Burch, Western Illinois State Normal School, Macomb, Ill. (c) Child Study, F. B. Dresslar, University of California, Berkeley, California. (d) The School Superintendent, J. W. Searson, State Normal School, Peru, Nebraska. Discussion led by T. A. Mott, Superintendent of Schools, Richmond, Indiana. "The Relation of Manual Training to Academic work in High Schools—Interdependence and Opportunity for Mutual Helpfulness," B. W. Johnson, Seattle High School, Seattle, Washington. Discussion led by James E. Addicott, Isidore Newman School, New Orleans, La. The problem of modern industrial education will be considered under the topic, "Can the School Life of our Pupils be Prolonged by an Adequate Provision for Industrial Training in the Upper Grades?" Jesse D. Burks, Teachers Training School, Albany. N. Y., and it is hoped that something may be learned about what might be called a "Manufacturer's School" from Mangus Alexander of the General Electric Company, Lynn, Mass.

OWING to requests received from supervisors of art and manual training from many states, the program for the meeting of the Western Drawing and Manual Training Association to be held at the University of Chicago, May 1 to 4, is to be of an art-craft character, the time being principally devoted to design and its application. There will be a lecture on "Design" by Arthur W. Dow of Columbia University; an illustrated lecture on "Primitive Art" by Prof. Dorsey of the Field Columbian Museum, followed by a visit to the Museum; an illustrated lecture on "School Architecture," by Dwight Perkins, Chicago School Board Architect. One morning will be devoted to "Applied Design," when a number of workers in different materials will give illustrated addresses. Mrs. Madeline Yale Wynne of Chicago will talk on "The Use of Metal;" Edwin O. Grover of Chicago, on the "Making of Books;" Miss Ellen G. Starr of Hull House, on "Bookbinding," and others will speak. The subject "Art-Craft Problems in the Schools," will be presented by Miss Emma Roberts, Supervisor of Drawing, Minneapolis, Minn., and Forrest Emerson Mann, Director of Society of Arts and Crafts, Grand Rapids, Mich.; Wm. H. Elson, Supt. of Schools, Grand Rapids, Mich. will give the superintendent's view as to "The Place of the Arts in the School Course." There are very good things planned which are not yet quite in shape to announce. The University is making preparations for entertainment and a reception. There are to be very interesting exhibits, and everything points toward a very inspiring and helpful meeting.

BY vote of the executive committees of the Eastern Art Teachers' Association and the Eastern Manual Training Association and of the two special committees ap-

pointed last year at Trenton and Newark, there will be a combined meeting of the two associations in New York City, on the afternoon and evening of May 31st, the morning and evening of June 1st, and the morning of June 2nd. These meetings will be held at Teachers College and at Pratt Institute during the time of the annual exhibitions of their various departments, the afternoons of June 1st and 2nd being left free for the study of the exhibits. The special committees appointed last year will make a report at this meeting on a plan for the amalgamation of the two associations. It is expected that this meeting will be one of unusual interest.

WE learn through Mrs. Walter Ward of London, England, that Fraulein Heenart, president of the Kindergarten Society of Germany will be "at home" from August 1 to August 15, 1906, to educators from all parts of the world who are interested in studying the large collection of manuscripts of Froebel's works in her possession. A class for lectures on principles of Froebel's system will be formed and parties organized for travel through the Froebel country. Mrs. Ward speaks of Fraulein Heenart as the "curator and collector of everything Froebelian." Visitors are requested to write beforehand in English for particulars to Fraulein Heenart, 33a Theatre Strasse, Eisenach, Germany.

THE summer term of the Teachers' Training College of the German Association for Manual Instruction will be held from July 3 to August 31, at 20 Scharnhorst-Strasse, Leipzig, Germany. This school is directed by Dr. Pabst from whom more detailed information may be secured.

A new center for manual-training work has been opened in Queen Alexandra School at Toronto, Can. This is a large school and the manual-training department is well but not extravagantly equipped. John Brennan, a graduate of Macdonald Institute has been placed in charge. The opening of this center is the first step in providing a two years' shopwork course for the boys. Plans are in preparation for the opening of another center by Jan. 1, 1907, and a committee is considering the introduction of manual training in the new "Technical High School" which is as yet only a matter of talk.

THE new officers of the Manual Training and Drawing Teachers Association of California are; President, Walter A. Tenny, of Oakland; Secretary, Charles H. Thorpe, 2039 Pine St., San Francisco.

ROSS J. BROWER formerly a grammar grade instructor in manual training has been elected to a similar position in the Polytechnic High School of San Francisco.

THE Polytechnic High School of Oakland which has had a two years' course in woodworking and pattern-making has lengthened its technical course to four years. Metalwork has been incorporated in its new plan, the last two years tending toward vocational work. The work continues under the direction of Walter A. Tenny.

CHARLES F. HILL, principal of a ward school in Whitewater, Wis., has adopted a new plan for admitting boys to shopwork. Mr. Hill has fitted himself to teach manual training and finds the demand for instruction so great that he teaches three classes a week between 4:00 and 5:30 o'clock, and two a week from 6:30 to 8:30 in the evening. To these classes he admits by tickets only.

THE eighth annual exhibition of public school work in drawing will be held at the University of Illinois, May 17-19. This exhibition will include all classes and

varieties of drawing executed in the public schools, including the ungraded country schools. Teachers are encouraged to send small exhibits as well as large—even a single mount is acceptable. There is no competition between exhibits but individual drawings of special excellence are awarded honorable mention. By this means Professor Frederick and his assistants are able to exercise an influence upon the work throughout the state.

Lewis Institute, Chicago, has an evening school of 965 students—575 in the School of Engineering and 390 in the School of Arts. 150 of these are in courses in mechanical drawing.

Augustus F. Rose, of the Providence Technical High School and the Rhode Island School of Design, will teach the courses in art metal work and design in the Summer School at Bradley Polytechnic Institute. This will give the teachers of the central states an opportunity to work under one of the best teachers of art metal work in the country. Mr. Rose has studied metal work under three of the leading craftsmen of London, England.

The outlook of the manual-training department of the Central State Normal School, Mt. Pleasant, Michigan, never seemed brighter than at present. The department has made steady gains in numbers and great interest is shown. This term seventy-five normal students are taking the work and the courses in rural school manual training are attracting a good many students. The school has a fine equipment for benchwork and all kinds of small handwork for the grades. A wood-turning lathe as well as an anvil and forge have been added to the equipment. A two years' course has been formulated in manual training and drawing. This course will prepare students to teach and supervise these subjects in the public schools of Michigan. Already two normal graduates, having had the manual work, are occupying responsible positions teaching manual training.

The matter of a new manual-training high school for Cleveland, Ohio, is being quite seriously considered by the authorities of that city.

The University School, Cincinnati, was recently opened on Blair Ave., Avondale, in a thoroughly modern building. Ample provision has been made for domestic science and manual training. Frederick Elton of Boston is in charge of the manual training department.

Hamilton, Ohio, is making a start, this spring, in both domestic science and manual training.

Frank K. Rogers, Superintendent of the Trade School at Hampton Institute, has been promoted to the office of assistant treasurer. This means that Mr. Rogers will manage the local receipts and disbursements of the Institute and take part in the general management. He will not, however, entirely give up his connection with the trade school, where he has done such efficient work.

As a valuable means of art education the Ethical Culture School of New York City conducts each year a number of small exhibits, each dealing with some one line of art or craftsmanship. Those of the present season are as follows: Dec. 11-20 Loan Exhibit of Etchings by Giovauni Battista Piranesi. Jan. 29-Feb. 10 Art Metal Work. Feb. 19-24 Weaving and Embroidery. In the metal exhibit were shown examples of jewelry in silver and copper, articles of hammered and cut copper and

silver, such as bowls, jewel caskets, belt buckles and many other interesting articles; an iron hood for a fire place and a copper fire place fender were some of the larger pieces. The exhibits were mostly the work of the instructors from different parts of the city and some of the students at College Settlement. One case was devoted to a most interesting exhibit of metal craft from Japan and India loaned by Prof. Charles R. Richards. Another feature was a collection of typical electroliers loaned by Black & Boyd showing results of various processes employed in the work of the best American commercial houses. The exhibit of textiles and embroideries included a collection of embroidery by the Deerfield Blue and White Society, hand weaving from Berea College, examples of weaving in different materials from the class at the Brooklyn Institute of Arts and Sciences, curtains woven from hand spun wool and colored with vegetable dyes by Mrs. Douglas Volk, weaving by Miss Elizabeth Cristy (done at Haselmere, England) weaving by Mrs. Victor I. Shinn and woven rag rugs from Chelsea Handicraft House, New York City.

THE Technical High School building, of Providence, R. I., which has for a long time been too small for the increasing number of students is now being enlarged. The building when finished will be four stories high and will accomodate at least three times as many students as the original building. It is expected that, in September, 1907, when the enlarged school is fully ready for occupancy, the departments will be opened in the evening for workers in the respective trades. Large opportunities will be offered to those working in mechanical and artistic lines.

A course in forging and other metal work (hammered copper) has been introduced in the normal course of the Sloyd training school in Boston. This is a new departure of the school, and its purpose is to give to students intending to teach in high schools not only an opportunity to acquire skill in the handling of metal, but also to test its value in manual training, as well as to consider methods for its use which shall be in harmony with the educational principles of Sloyd.

—SCHOOL JOURNAL

THE board of education of Springfield recently voted to introduce constructive card-board work for the boys of the fifth grade. The girls in this grade will continue their lessons in sewing.

THE Dickinson Academy in "Old Deerfield," recently received a gift of $75.00 to start a manual-training department in that school. Although the amount of money was small, by wise expenditure, a good equipment for twelve pupils has been provided and classes began work last December. In a town where there is so great interest in the arts and crafts it seems especially fitting that the manual arts should be given a more important place in the school curriculum. Much credit is due to Frank A. Boyden for his untiring efforts in establishing this department in his school.

GEO. T. SPERRY has been appointed supervisor of manual training and drawing in the schools of Westfield, Mass. Through his influence the authorities voted to elect a trained teacher to take the place of a carpenter formerly employed to teach manual training. The experience of a few years has made it very plain that only a professionally trained teacher can carry on the work successfully.

THE COFFIN SCHOOL

THE Coffin School, Nantucket, Mass., was endowed in 1827 and, though for over sixty years an academic school, is now devoted to manual training.

In the summer of 1903 an equipment for woodworking and mechanical drawing was installed, and in October of the same year the school was opened to the town high school pupils free of any expense to the town or to the pupils themselves. At first the girls and boys received instruction together in benchwork and mechanical drawing at the Coffin School one session per week, but later a sewing teacher was engaged and classes in sewing were established for the girls. It was then possible to accomodate pupils in grades, eight and nine, thus having the manual training extend over six years of school life. At present mechanical drawing, joiniery and wood-turning are taught the boys while sewing is the only manual-training subject given the girls in connection with their school work. It is hoped that the work may be extended and cooking be introduced for the girls.

In addition to the work with the school pupils there is an industrial class in basketry. Last year baskets made in this class were sold to summer visitors and the proceeds well paid a number of women for their time and labor during the previous winter months.

There was also a special class in woodworking for girls and women, and an evening class in furniture construction for men and boys. Many pieces of work from the evening class have been sold. Thus the dollars-and-cents appeal has been made.

Nantucket, like other small towns which are largely dependent on summer visitors for support, is in need of the best educational advantages and the Coffin School, in supplying healthy activity to the young people during the winter months, is doing much to offset the degrading influences of idleness. —GEORGE M. MORRIS

LOUISIANA

THIS state now holds the record for illiteracy and it is encouraging to note that the educational forces from the state superintendent to the humblest teacher are inspired with a determination to rid the state of such a dishonor. It frequently happens that such faithful service goes unnoticed in so large a country as this, but it is a pleasure to publish the following notes collected by J. E. Addicott which shows that manual-training work is an important factor in this forward movement. In the recent past, education in the South has been enjoyed only by the few, and its somewhat narrow purpose was to produce the lady and the gentleman of social graces and literary attainments, with little reference to social efficiency, practical industry, agricultural or commercial insight and ability. While social and literary culture must ever be the crowning feature of education in the South, nevertheless we see the ideals of social efficiency as expressed in the industrial arts constantly increasing in the public consciousness. The South has strong speakers, good thinkers, efficient leaders; but lacks the fullest power to plan and do things among the so called middle classes. This lack is keenly felt by all classes, and strenuous efforts are being put forth to make education thoroughly democratic and practical. That the South is making the transition from the ideal of education for the purpose of individual attainment to the ideal of social efficiency, is evidenced by the increasing number of industrial and manual-training schools, and the growing importance of mechanic arts courses in the colleges and universities.

In the state of Louisiana there are five schools for whites doing efficient work along some lines of industrial art. During the last two years the Louisiana State University and Agricultural and Mechanical College at Baton Rouge has added to its buildings and equipment a large substantial two story brick building with a strictly

modern equipment for joinery, wood-turning, pattern-making, foundrywork, forging and machine-shop work. All of the machinery is driven by motors and each shop is supplied with a tool-room and a combination toilet and locker room. At present there are one hundred students receiving instruction in the shops.

At Tulane University situated in New Orleans, manual training deals principally with mechanic arts; and the chief endeavor is to inculcate the fundamental principles of such mechanic arts as are considered essential to an engineering course. Throughout the student's course in mechanic arts, the bearing of his manual-training work upon his mental accomplishments is not neglected; the development evidenced in the mature student and clearly attributal to his manual training, is marked; still that feature of instruction is not the principle consideration, although its great value is recognized. The student is trained to become a good engineer and the course is laid out with a view to obtaining that result in the shortest possible time. By carefully arranging the course the student is given adequate training in the fundamental principles of all the important arts connected with engineering. The work is carefully organized and is paralleled with courses in technical instruction in which the various subjects in the laboratories are taken up separately and carefully explained; with the aid of different text books these courses are materially strengthened and prove of no small value to the student. This also relieves the instructor from loss of time in giving general instruction when the student is at work, and at the same time it throws the student upon his own responsibility, to a certain extent, strengthening him, by increasing his confidence in his own ability when he comes to apply his theoretical training in the laboratory. Thus it is possible to cover a great deal of ground in the necessarily limited time allowed in this crowded course. The course in technical instruction has been materially strengthened by means of a reflectascope; new methods of manufacture and the application of new and special tools to the various branches of engineering are thereby vividly and accurately brought to the students' notice. This additional equipment offers great possibilities and it is hoped this year to take up more thoroughly the methods in vogue in commercial work, to present the different problems constantly arising in the manufacturing world, and thus prepare students satisfactorily to fill the positions to which they may be called after leaving college.

Louisiana has thousands of acres of unimproved timber and swamp lands; her agricultural possibilities are not fully realized even by the Louisianians. Fruit growing, stock raising and truck gardening are in their infancy. The city of New Orleans imports from the West and North most of the fruits, meats and garden products to supply the local market. To convert swamps into farms requires mechanical ingenuity, capital and energy. In order that local men may be trained to develop these resources the legislature has established two important industrial schools, one at Ruston, and the other at Lafayette. The school at Ruston has been remarkably successful; it is always crowded and always applying for additional buildings and equipments. The Southwestern Louisiana Industrial Institute at Lafayette was opened more recently. It is situated in the heart of the illiterary section—the adjoining parishes recording in some instances over fifty per cent of native white men over twenty-one years of age who cannot read and write. The so-called industrial work of this institution is really what is recognized in national educational circles as simple manual-training work corresponding to that of the manual-training high

school. Three and four year courses of study are given to work in wood and iron in a regular manual-training workshop for boys, including sloyd, joinery, wood-turning and forging. The course also includes mechanical drawing and drafting, and to some extent original designs are developed for various articles of furniture and forge work produced in the shop. Machine work is to be added later. Manual-training work for the girls consists only of sewing and cooking, which is similar to the course given at Pratt Institute in Brooklyn. Miss M. C. Riis of that institution is in charge of this work. The woodwork is in charge of Ashby Woodson, of the Miller School, Virginia.

The Isidore Newman Manual Training School of New Orleans is probably the only school in the South offering manual training and art in every grade from the kindergarten through the grammar and high school to the university. The school is under direction of the association conducting the Home for Jewish Orphans, and is non-sectarian in character. Its establishment was made possible by the generosity of Isidore Newman, in whose honor the school was named. Its doors were opened for instruction Oct. 2, 1904; many scholarships are given to especially qualified pupils, selected from the general school population, and a limited number of pay pupils are admitted. These pay pupils have increased four-fold over the attendance of last year, thus filling the school to overflowing and necessitating immediate extention of the present buildings. This modern school is a model in organization and equipment; in purpose and equipment it approximates closely the Ethical Culture School of New York City. Both sexes are admitted to the high school courses, as well as to any of the seven grades. In the upper grades and high school, however, a differentiation in manual training, drawing and gymnastics will be effected, to meet the special needs of boys and girls. The time of the pupil in school is judiciously divided between the work of the ordinary grammar school and instruction in those branches which distinguish the manual-training school. The school is situated on Peters Avenue, No. 1931, in the midst of the residential portion of the city. The building is well planned; its broad corridors, large transoms, numerous windows, perfect heating, plumbing and other adjuncts combine to make it attractive and hygenic. In addition to the class rooms, there is a large assembly hall, gymnasium, baths, well-fitted departments for metalwork, woodwork, art, cooking, sewing and other special lines of school work. The chief aim of the four-years' high school course is to produce educated men and women with higher ideals and for greater usefulness. With this end in view the special courses in the industrial arts are to be correlated with the regular high school branches, thus making each supplement and enrich the other in a vital way. In this way it becomes possible to prepare for practical life work and at the same time for higher institutions of learning. During the latter half of the course an opportunity is given students desiring to enter the university to prepare directly for such work, and those selecting some trade may prepare for their special work. There may be a few electives in the work of the first two years, but no distinctively trade school work is offered until the latter half of the course, when the student should be well prepared to choose intelligently between a university education and a trade. Graduates of the school who successfully complete the four-years' course are admitted to Tulane University, Newcomb College and the State University at Baton Rouge without examination.

In New Orleans there is a growing public sentiment in favor of manual training and a movement is now on foot to introduce some form of hand work into all public

schools. There is every reason to believe that a manual-training high school will soon be constructed and equipped. Funds have been raised, and a building rented for a trade school which was opened March 15th.

Tulane University points with some pride to the fact that a few manual-training instructors of northern colleges received their training in Tulane's department of mechanic arts.

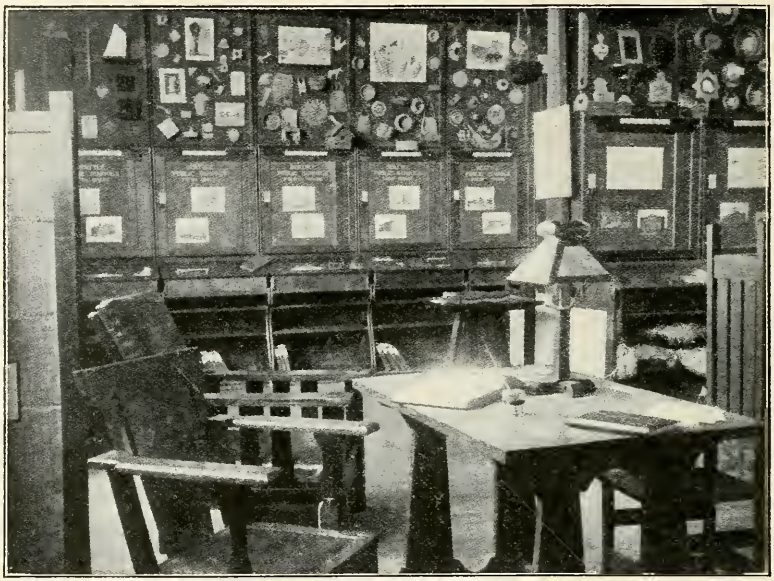


EXHIBIT OF THE SEATTLE PUBLIC SCHOOLS.

MANUAL TRAINING AT THE LEWIS AND CLARK EXPOSITION PORTLAND, OREGON. 1905.

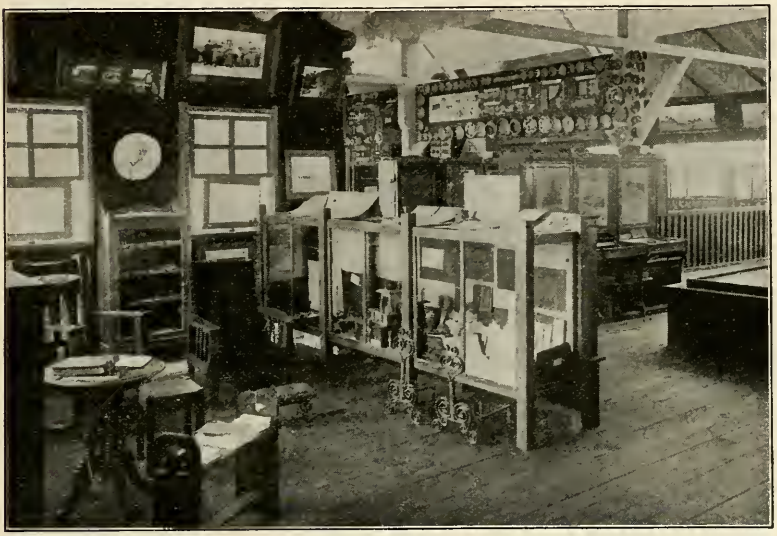
The Lewis and Clark Exposition at Portland, Oregon, marks the beginning of a new progress for the Northwest. Following so close upon the wonderful Louisiana Purchase Exposition with its immensities, it did not suffer through unfavorable comparision. The Portland Fair made small pretensions and carried them out, and no one who visited it, familiar with other Fairs, was disappointed. Great things were not expected, yet all seemed agreeably surprised at the natural beauties and the artistic taste displayed.

The Forestry Building alone rewarded one for the trip, and was of particular interest to the school craftsman. The glories of nature, so bountiful in this great Northwest, were well expressed in these great forest giants, the fir trees, brought together in this Druid-like temple. The majesty of the forest was not forgotten, and the skill and taste of man supplemented nature in this beautiful building.

The whole exposition was an educational exhibit in a large and very important sense. John Graham Brooks in one of his addresses at the Civics Congress, emphasized the deeper significance of this truth and said that this Exposition, more than

any previous one, endeavored to tell its visitors the "why" and the "how" of what they saw; that a great exposition was a more far-reaching educational force than a university.

California, Oregon, Washington, Idaho, Montana and Utah of the Western states, sent complete educational exhibits, while Massachusetts was the only Eastern state sending a complete educational exhibit. New York, Missouri and Illinois exhibited their chief state institutions. Lack of space and expense prevented more



THROOP POLYTECHNIC INSTITUTE EXHIBIT.

than this, as all educational exhibits were shown in the respective state buildings, except that of Oregon, which was the largest.

All of these states had the advantage of their previous experiences at St. Louis except Washington. This state, however, had one of the best exhibits, and the display of school work gave more evidence than any other of the rapid growth of the manual-training idea, in both city and county. Much that was shown indicated a knowledge of the educational value of handwork and had a real relation to the interests of the child and his need for expression. The furniture for the comfort of visitors was made by pupils in regular classwork in the schools of Seattle, Ballard, Spokane and Waitsburg. The drawing in the grades aud the high school of Seattle won much praise for its excellence.

Utah displayed much excellent handwork. The manual-training students of the Agricultural College at Logan sent some pieces of furniture—chairs, seats, desks, etc. of fine workmanship, together with many examples of their work in forging and machine work. The domestic arts and domestic science were represented by dresses and gowns of fine workmanship and by appetizing jellies and jams. The explanation

of the work shown was full and complete, telling how it was done and why, and what the results were to the boys and girls of Utah.

The Salt Lake Normal School exhibit displayed every form of expression work and how they were using it in correlation with history, literature and nature study. The skill and artistic taste displayed was surprising. In principles and methods this school is closely patterned after the Chicago School of Education. The influence of this school is far-reaching in putting handwork in its best relation to the elementary school.

SALT LAKE NORMAL SCHOOL EXHIBIT.

Idaho displayed considerable elementary handwork, but it was placed too high on the walls, with nothing to tell what were its relations, if any, to the other school work. What was shown indicated that educational theory was sound in Idaho.

Oregon has just made a beginning in manual training. Portland started the work a year ago in the fifth, sixth, seventh and eighth grades of the city schools. Drawing has been in the schools for some time and some excellent work was shown. The work for the boys was very suggestive and indicates the right sort of manual training. Many of the models are after a boys own heart; they have a "go" in them and permit of the pupils own modification. Some artistic hand-craft was shown, made by the Arts and Crafts Club of the manual- training teachers, who have a shop for their own use in one of the schools, where they can go day or night to experiment and discuss the problems arising in their work.

The California exhibit needs no description. It was the same that was shown at St. Louis. An exhibit from California whether of gold. fruit or education has a finish that comes from long experence in expositions as well as long experience in developing the resources exhibited. Sloyd and its methods were in evidence in most

of the handwork of the public schools. The exhibits of the Wilmerding Technical School was very complete in every form of educational handwork, though the trade work was the dominant feature. The Throop Polytechnic of Pasadena, California, was well represented in many lines of art and handwork, and they were better related than in any other exhibit. That art may be expressed in any material of use, and that the resulting product may be an expression of a real purpose, born of an interest gained in school or home, was evident in this exhibit. The accompanying photograph shows fairly well some of their products. The work on the panels beyond is from the Los Angeles city schools.

The Massachusetts exhibit was badly crowded in a small state building and to those who profited by seeing it at St. Louis, it lacked the genial presence of its director, Mr. Geo. E. Gay, who for so many years has made it possible for Massachusetts to show the other states how to do it. Some of the best exhibits of handwork were crowded out on the porches, away from any connection with the main exhibit. However, to the many interested visitors, who had not seen this exhibit at St. Louis, there was nothing lacking except time in which to see and take note of the best to be found in educational progress.

The handwork in the U. S. Government educational exhibit was confined to the work, skillfully done, by the Indian boys and girls. The teaching, however, is from he trade standpoint and the Indian boy or girl is encouraged to follow out but one kind of work as a trade.

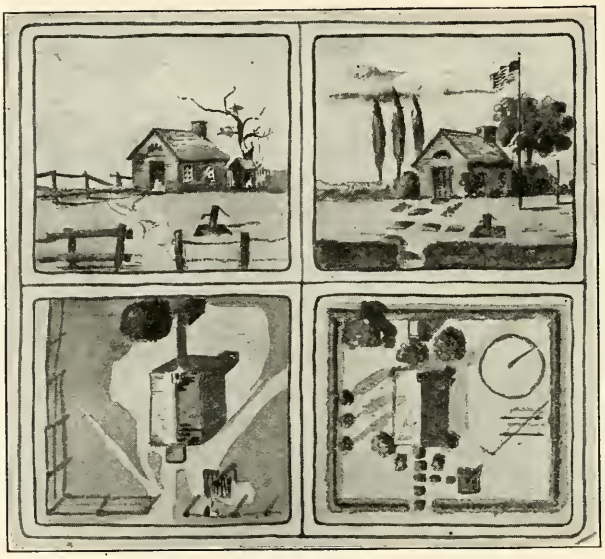
The educational work from the Philippine Islands was instructive. The many forms of primitive handwork done by the natives in different parts of the archipelago showed great skill and much taste and beauty. In an adjoining case the work introduced in the native schools by the American teachers raised a question in ones mind as to the wisdom of preverting a native taste and skill instead of using it as an educative force.

There is a keen alertness in this Northwest that wants the best and can pay for it, that makes the rapid progress of the manual arts in our schools a "sure thing." "What are those mud animals?" "Were those dolls clothes made in the schools?" t'Why do they do it?" "Well we will have to do that in our schools when I get home." The above queries heard many times give the truth to the motto conspicious in the Washington educational exhibit. "Exhibits are heralds of progress. Progress means action and action means life."

B. W. Johnson, Seattle.

BREVITIES

The tail-pieces on pages 127 and 130 show blacksmith work done under Thomas F. Googerty of Pontiac, Illinois. The lantern and bracket on page 177 were designed and executed by a student in the last junior class of the Pratt Institute High School. The drawing on page 179 shows a closed bookcase of simple construction. It may be made 33 in. long or 5 ft. The features of the design are the construction, the overhanging top at the back—equal to the thickness of the baseboard, the long vertical lines of the posts and glass panels, and the octagonal feet.



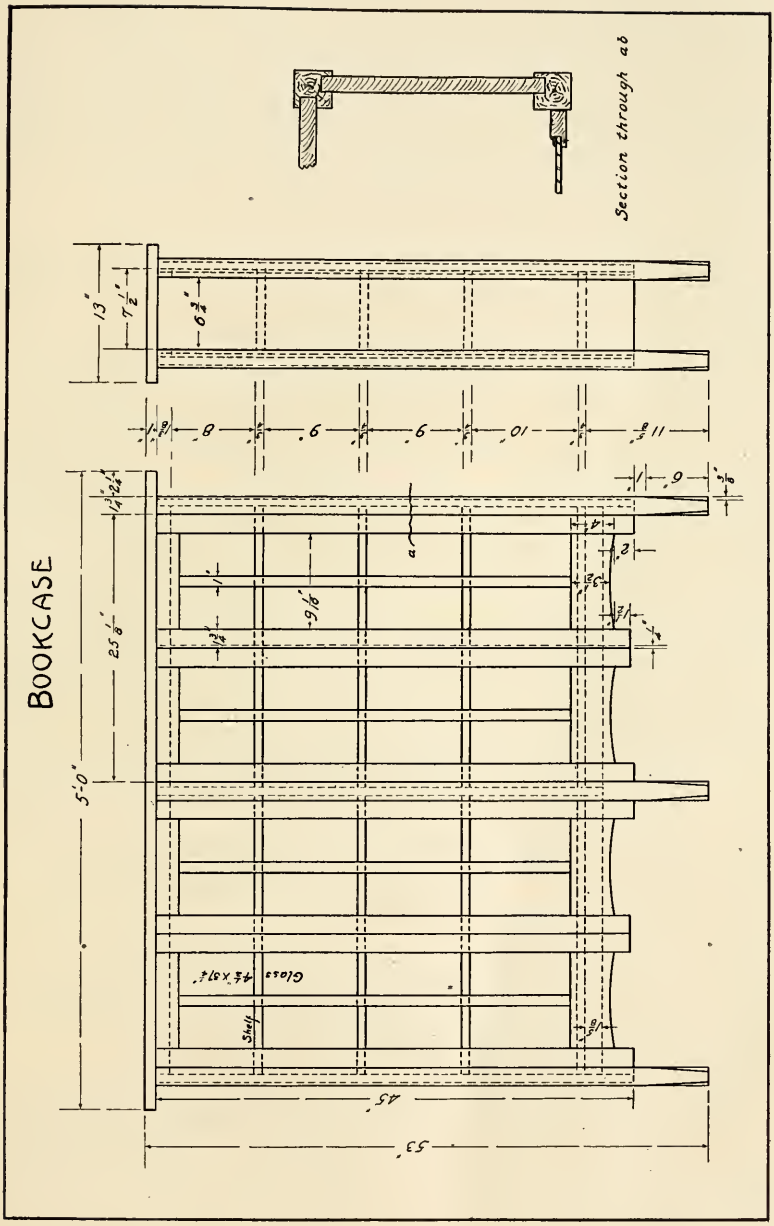
BEFORE AFTER

The above illustration showing how a country school house and yard may be beautified was used recently by Edwin V. Lawrence in an address before the Peoria School Crafts Club. In itself it is a whole sermon on beauty and patriotism.

OUTLINE OF HANDWORK FOR THE ELEMENTARY SCHOOLS

We are often asked what kinds of handwork are suitable for the several grades in the public schools. The writer of such requests is usually a teacher or public school principal who has had little or no technical preparation for teaching handwork. He, therefore, asks us to recommend books or other helps and would be glad to have us tell him in detail what kinds of work should be taught in each grade. He has no equipment for handwork, and he has but little money available with which to purchase. But he feels the need of doing something in his school and wants us to help him.

We recognize the progressive spirit and earnestness that prompts such a request and we want to help him, but we do not know his capacity nor the conditions under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a
Glass 4½ x 9½
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which he is working. Experience has led us to avoid mapping out a definite course. Rather, we have come to feel that the best we can do is to encourage him to continue his search; so we answer his questions in part only.

Thinking that some of the readers of this magazine may be interested in an outline sent out recently, we give it in full below. It is intended merely to suggest some lines of handwork which are possible in the several grades of an elementary school without shop equipment. It presupposes that the one to whom it is sent will be willing to "work out his own salvation."

POSSIBLE KINDS OF HANDWORK

From the following outline one or two, or possibly, in some cases, three kinds of work may be selected for each grade;

GRADES I and II. Equipment: pencil, ruler, scissors, needle.

(a) Paper-folding; geometric, square of paper given.
(See "Constructive Work in the Primary Grades" by Julia C. Cremins in Year-Book of Council of Supervisors of the Manual Arts, 1904.)

(b) Paper-cutting, freehand. Cutting natural forms and illustrating stories. (See "Freehand Cutting" by Olive Wills in School Arts Book, Vol. IV, pp. 265-271.)

(c) Paper-weaving. Strips of paper given. (See "Educational Handwork Manuals, Part I," by Arthur H. Chamberlain, also "Suggestions in Handwork," by Wilhelmina Seegmiller.)

(d) Paper Construction Work, (See "Paper Sloyd for Primary Grades" by Ednah A. Rich.)

(e) Work with Raffia or shoestrings; braiding, winding, knotting. (See "Educational Handwork Manuals, Part I." by Arthur H. Chamberlain.)

(f) Weaving. Rugs and other simple objects of yarn or strips of cloth or raffia.

GRADE III. Equipment: Pencil, ruler, scissors, needle, two or three ticket punches for the class.

(a) Cardboard Work. Very heavy manila paper. One square corner given. (See "Paper Sloyd for Primary Grades" by Ednah A. Rich or "First Years in Handicraft" by Walter J. Kenyon.)

(b) Card Work. Macrame cord, shoestrings or wrapping cord.
(See Chapter XXIII in "Practical and Artistic Basketry" by Laura R. Tinsley.)

(c) Basketry. (See "Practical and Artistic Basketry" by Laura R. Tinsley.)

GRADE IV. Equipment: The same as Grade III with a compass added.

(a) Cardboard Construction. Heavy manila paper or bristol board. Find square corners. (See "Cardboard Construction" by J. H. Trybom, or, "Paper and Cardboard Work" by Arthur H. Chamberlain.)

(b) Basketry. (See reference in Grade III.)

(c) Clay Working. (See "Clay Working in the School" by Cheshire L. Boone in Year-Book of Council of Supervisors of the Manual Arts, 1905, also "Pottery in the Public Schools" by Forrest E. Mann in MANUAL TRAINING MAGAZINE, January 1906.)

GRADE V. (a) Knifework. Equipment: Knife, try square, compass, ruler, pencil for each pupil, and small hammer, 2 hand-screws, oilstone, oil-can, and brad-awl.

Material. Basswood, $\frac{1}{8}$ in. and $\frac{3}{16}$ in. thick. Pad of drawing paper 6×9 in. Liquid glue, small brads, sandpaper, stains and wax for finishing.

(See "Elementary Knifework" by W. C. A. Hammel and "The Art Crafts for Beginners" by Frank G. Stanford.)

(b) Bent Iron Work.

Equipment: Flat-nose pliers, round-nose pliers, rule and pencil for each pupil. Snips for every four pupils; small hand vise, small hammer, Morrill punch, and paint brush for general use.

Material; $\frac{1}{4}$ in. ribbon iron, $\frac{1}{4}$ in. binders, rivets, black paint. (See "Bent Iron" by Henry T. Bailey in School Arts Book for February, 1905.

(c) Basketry. (See reference in Grade III.)

(d) Clay Working. (See reference in Grade IV.)

GRADE VI.

(a) Knifework. Continuation of work in Grade V.

(b) Bent Iron Work. (See references in Grade V.)

(c) Basketry. (See references in Grade III.)

(d) Sewing.

(e) Clay Working. (See references in Grade IV.)

GRADE VII.

(a) Knifework. The same as Grade V, adding the use of thicker wood (pine) in the middle of the year. To the equipment should be added 1 back saw 10 in., 1 bench-hook, 1 bit brace, 3 drill bits—sizes to suit work to be done. (See "Advanced Knifework" by W. C. A. Hammel.)

(b) Tooled Leather Work.

Equipment: Modeling tool, small board of hard wood, knife, ruler, sponge (See MANUAL TRAINING MAGAZINE, July 1904, and October 1905, also "The Art Crafts for Beginners" by Frank G. Sanford.)

(c) Sheet-metal Work. (See "The Art Crafts for Beginners" by Frank G. Sanford and "Simple Metal-working in the Public Schools" by Forrest E. Mann in MANUAL TRAINING MAGAZINE Vol. IV.)

(d) Sewing and Garment-making.

GRADE VIII.

(a) Mechanical Drawing.

Equipment: "Springfield Kit," compass, ruler, pencil, eraser. (See "Mechanical Drawing" by Anson K. Cross.)

(b) Paper box making and the elements of bookbinding. Use of strawboard and "lining" paper.

Equipment: Straight-edge, knife, scissors, ruler, pencil, folder.

Material: Strawboard, lining paper, cover papers, linen, paste, glue. (See "Some Phases of Constructive Work in the Grammar Grades" by Julia C. Cremins, in Year-Book of Council of Supervisors of the Manual Arts for 1905.

(c) Tooled Leather Work. (See reference in Grade VII.)

(d) Sheet-Metal Work. (See reference in Grade VII.)

(e) Sewing and Garment-making.

REVIEWS.

1905 Year Book, Council of Supervisors; published by the Council and obtainable of E. D. Griswold, 36 Point St., Yonkers, N. Y. 1905; 8 × 10 in., pp. 253. Twenty plates and other illustrations; cloth $3.00, postpaid.

The Council of Supervisors has done itself proud in its latest production. Largest by many pages, of its year books, the 1905 volume contains a series of articles which is a credit to the organization and should prove an inspiration to teachers of the arts from the primary grades to normal school.

It were impossible to review the various chapters in detail, for even the titles of the seventeen different studies make a lengthy list. Shopmen will find in Mr. Mohr's contribution a sane discussion of the much mooted question of the decorated shop model, while grade teachers and supervisors will welcome the helpful descriptions given by Miss Cremins of various models (books, portfolios, etc.) which can be made with the simplest of equipments. Mr. Boone shows how pottery may be produced in the elementary school and Dr. Haney contributes an analysis of the coordinated scheme of manual work for the primary grades which he has developed in the New York City schools. He accompanies his article with the complete outline of his primary work—outlines which where they were printed for the New York schools a few months since, were exhausted and out of print within a month owing to requests for them from teachers the country over.

High school courses and equipment are described by Miss Stock and Messrs. Brown and Daniels, while Normal school problems from the standpoint of both supervisior and grade teacher are discussed by Mr. Sargent, Miss Warner and Miss Soper. Mr. Bailey contributes a forceful plea for beautiful school work, with an extended list of symbolic elements useful in design, while Prof. Dow presents a well illustrated and suggestive article on the educational value of Japanese art.

Mr. Davis is represented by an excellent study of evening school work in the manual arts, and Mr Burnham by a practical consideration of what goes to make for good taste in schoolroom decoration. The volume closes with an article by Dr. Kent on children's constructive instincts—an article which should be read by every elementary teacher of constructive work, and by the usual annotated bibliography of the year's articles on the arts compiled with industrious pains by Miss Pierce, to whom every member of the fraternity should be grateful. Even with this summary cataloging enough has been said to show how far the Council has fulfilled its pledge that its members should labor together for the professional profit of the craft. The organization is to be congratulated on its increasing measure of success. Its Year Book merits the title of a worthy contribution to professional literature. It is not a book of empty discussions but of helpful suggestions drawn from the experience of some of the best known teachers of the arts. It is not a book for a single reading but one to go on the shelves of a working library—one to be thumbed until it bears on its many pages the evidences of daily consultation.

—*H.*

Hints and Helps for Young Gardeners. By H. D. Hemenway, director of School of Horticulture, Hartford, Conn. Published by the Author, 1906; 6×9 in., pp 59, illustrated; price 35 cents.

"This little book is written with a view of furnishing a low-priced guide to school and home gardeners. It is intended not only for youthful gardners, but also for those young in experience.

It has grown out of the experience of the author in the classroom and garden with classes of both children and adults."

The above quotation from the author's preface indicates the aim of the book. The scope may be judged from the following chapter headings; How to plant the garden; soil tillage; how to test seeds; how to plant; how to dig and set trees; how to make a hot bed and care for the same; strawberry culture; window gardening.

Concise, attractive in appearance and coming from so high an authority, we believe this book is just what many teachers have been looking for. —*B.*

Paper Sloyd for Primary Grades. By Ednah A. Rich. Ginn & Co., Boston, 1905, 9½×7 in., oblong, cloth; pp VIII,+55, illustrated; price 85 cents.

This book is a well-written manual of instruction covering a good course in paper sloyd for the first three years of the elementary school. In clearness, definiteness and the quality of its drawings it is superior to other books intended to cover the same ground. It should be easily understood by teachers who have had no technical preparation for teaching manual training.

We think the author has missed an opportunity to encourage the art side of manual-training work; and we believe that her course comes too near being a rigid system of models taught by the dictation method; otherwise it possesses so many points of excellence that we welcome it to the growing list of helpful book on elementary manual training.

The introduction to this book is a particularly fortunate one written by Professor Paul H. Hanus of Harvard University. It is well worth reading more than once.

—*B.*

Educational Woodwork. By C. A. Horth. Spon and Chamberlain, New York, 1905: 5×7 in., pp 160. Many illustrations; cloth, $1.00 net.

For the shop instructor impressed with the value of both practice exercise and useful model, the present manual has many helpful suggestions. It offers a series of joints, and after each a model embodying the particular joint described. Concise directions for the construction of the different forms are given, with various hints as to the manner in which classroom errors are to be avoided.

Chapters on Shop Equipment, Organization and Discipline are included together with some interesting notes on the adaptation of elementary woodwork to the needs of the mentally deficient. —*H.*

Training in Woodwork. By James M. Tate. Northwestern School Supply Co., Minneapolis, Minnesota. 6×8; pp 122; illustrated.

Mr. Tate offers in this revised edition of his manual many suggestions born of his experience of a dozen years in technical schools. The volume is an abbreviated text book for the worker of high school grade, and is designed to aid a busy class instructor by describing to the student the details of procedure in completing various practice exercises in carpentry, wood-turning and pattern-making. The exercises

themselves are of the familiar technical-school type—joints in the carpentry, cylinders beads, rings, cups in the wood-turning, handwheels, elbows and sheaves in the pattern-making. The directions are clear and to the point though often all to brief, but the illustrations help out. The latter are numerous and are drawn in workmanlike fashion. —*H.*

Foundry Practice. By James A. Tate and Melvin O. Stone. The H. W. Wilson Company, Minneapolis, Minn. Second edition, 1906, 6×8 pp 236 illustrated.

This volume like the preceding is designed as a hand-book to be studied by the student of the technical or mechanics-arts school in connection with his practice in foundry work. As an elementary treatise it is to be commended to teachers looking for a text book on foundry practice for beginners.

The earlier chapters describe in some detail the sand and tools used, and the process of making a mold, of preparing cores and of dry sand molding, while the later pages are devoted to a description of the types of furnaces used in remelting cast iron in the foundry, the process of making chilled castings and the various forms of apparatus which go to make a modern foundry plant. An extended glossary is added. —*H.*

The following have been received:

Report of the Superintendent of Indian Schools. By Estelle Reel. Government Printing Office, 1905,. pp 34+6 plates.

Nature Study and Gardening. Primary Methods and outlines for the use of Teachers in the Indian Schools. By Estelle Reel, Superintendent of Indian Schools. Government Printing Office, 1905; pp 27.

Industrial Education in Schools for Rural Communities. Report of a Committee of the National Educational Association, L. D. Harvey, Chairman. July, 1905. pp 97; price 15 cents. Address Irwin Shepard, Secy., Winona, Minn.

Winnebago (Illinois) County Schools. Annual report of Supt. O. J. Kerne, 1905. 6¼ × 9¾ in., pp 80, richly illustrated.

The contents is suggested by the following chapter headings: The cost of country schools, beautify school grounds and make country life more attractive, good books for country schools, agriculture and school gardens, work of the boy's experiment club and girl's home culture club, educational excursions. Manual training, nature study, agriculture, gardens, beautiful trees, and many other things are illustrated in this unique report.

The Manual Arts Number of the Normal School Quarterly, State Normal University, Normal, Ill., October, 1905. Clara E. Ela and William T. Bowden.

This is a 24-page booklet containing 26 illustrations—mostly half-tones of manual training and art work done by the normal students and pupils in the practice school. Teachers of woodworking, especially, will find the illustrations interesting.

Eastern Manual Training Association. Proceedings of Convention, 1905. Henry W. Hetzel, Secretary, Central Manual Training School, Philadelphia, Pa. 6 × 9 in., pp 164; price 50 cents. This volume contains the papers presented at the convention; also much of the discussion. The last forty pages contain a printed list of manual training teachers in the United States. A valuable publication.

MANUAL TRAINING MAGAZINE

JULY, 1906

THE REPORT OF THE MASSACHUSSETTS COMMISSION ON INDUSTRIAL AND TECHNICAL EDUCATION.

CHARLES R. RICHARDS.

PRACTICALLY all of the commissions or individuals reporting upon the problem of Industrial Education, heretofore have contented themselves with an examination of existing industrial and technical schools, and a statement of the extent and manner to which these have influenced the surrounding industrial situation. In striking contrast with this procedure is the report that has recently issued from the Massachusetts Commission on Industrial and Technical Education, appointed by Governor Douglas on June 7, 1905. The studies of this Commission have extended far below the operation and results of the present meagre provisions for industrial training to the actual conditions under which children enter the industries, the demands of the industries upon them, the opportunities for development and the relation of the school to the whole problem.

In pursuance of its investigations the Commission held numerous public hearings in different parts of the state, which were attended by many classes of people and varieties of interest. As a result of these hearings the Commission made a number of deductions.

(1) There is a widespread interest in the general subject of industrial education, or special training for vocations. This is manifested both by students of social phenomena and of education, and by manufacturers and wage earners.

(2) There is a practical and specific interest among manufacturers and wage earners because of a *personal need.* The Commission was told at almost every hearing that in many industries the processes of manufacture and construction are made more difficult and more expensive by a lack of skilled workmen. This lack is not chiefly a want of manual dexterity, though such a want is common, but a want of

what may be called *industrial intelligence*. By this is meant mental power to see beyond the task which occupies the hands for the moment to the operations which have preceeded and those which will follow it—power to take in the whole process, knowledge of materials, ideas of cost, ideas of organization, business sense, and a conscience which recognizes obligations.

(3) The Commission was made aware of a growing feeling of inadequacy of the existing public school system to meet fully the need of modern industrial and social conditions.

(4) The Commission was not able to learn that even the people who are most interested in industrial education have any definite ideas as to its proper scope or method.

(5) The Commission early became aware that its purpose and work encountered the suspicion and hostility of many of the labor unions of the State. It was suspected that the Commission was created to formulate a plan for trade schools supported at public expense. The opposition to such schools is based on the fear that they would furnish workmen in numbers sufficiently large to affect the labor market, and bring about a lowering of wages.

(6) To technical schools in distinction from trade schools the Commission found little opposition.

(7) To the question, "If technical education were to be furnished, by whom should the expense be borne?" the most common answer was, "Wholly or partly by the State."

As a necessary element in their study of the subject, the Commission made a presentment of the Massachusetts system of education in the aspects which they felt most significantly related to the problem in hand. This analysis contains much that is of interest and weight. The relation between the common schools and the apprenticeship system in the early days, was complementary. The function of one was to promote intelligence as a basis of citizenship, the function of the other to train for industrial vocations. These two systems of training formerly existed side by side in practical balance, not conflicting with each other and each sufficient for the needs of the times. The change in these relations as brought about by modern industrial conditions, resulting from the falling away of the apprenticeship system, and the expansion of the public schools is traced in the report and the point clearly made that the present condition of affairs has produced a thorough unbalancing of the two elements. The most serious problems of all in the present situation the Commission finds is not the lack of manual skill, serious as this is, but the moral and intellectual deficiencies of the children going into the industries. "There is a one-sided sense of values, a one-sided view of life, and a wrong attitude toward labor. Not having any share in productive labor, and being out of touch with it, the youth have no standards by which to measure time or possessions or pleasures in terms of

cost. Many persons believe that about this point center some of the gravest of present-day social problems."

The history of the introduction of drawing and manual training into the schools is described and the lack of industrial value in the latter subject is scored in vigorous terms. "It has been urged as a cultural subject mainly useful as a stimulus to other forms of intellectual effort,—a sort of mustard relish, an appetizer—to be conducted without reference to any industrial end. It has been severed from real life as completely as have the other school activities." Could more just or suggestive criticism be made of much of our work to-day? How accurately it applies to much that is still held orthodox in practice and how well it characterizes the attitude of a large proportion of manual-training teachers! How much, too, of suggestion it contains for the vitalizing and advancement of manual training into real accord with the needs of our times!

The present provisions for industrial and technical training in the Commonwealth are noted, and the fact that practically all such provisions relate either to advanced training or evening continuation work, is made plain. That there exists in the State practically no provision for the training of beginners for trades and industries, except for girls in the case of the Boston Trades School, is the conclusion established by this portion of the report.

The most original and valuable contribution of the report as far as analysis of the situation is concerned, is contained in the report of the sub-committee on "The Relation of Children to the Industries," by Miss Susan M. Kingsbury. The committee made a study of the subject under four heads:

First—What the children of fourteen and fifteen are doing throughout the State.

Second—What the educational and economic value of these years has been to the child at work.

Third—What the educational and economic value of these years might be.

Fourth—What the economic status of the parents of these children is, and how necessary is the income of the child.

In order to answer these questions the committee conducted its investigations in forty-three of the cities and towns of the State. They followed 5,459 children into 3,157 homes and into 354 establishments, representing fifty-five industries. They sought to learn the school history of each child, the industrial history of the child, the financial and social status of the family, the thrift, industry and ambition of the family,

and especially the attitude of child and parent toward continued education, and the abilities of the parent to afford such opportunities to the child. The committee found that 25,000 children between fourteen and sixteen years of age are at work or idle in Massachusetts. Out of this number only about one-sixth have graduated from the grammar school, one-half have not passed beyond the seventh grade, and one-fourth have had less than six years of schooling.

A classification of industries into unskilled, low-grade skilled, and high-grade skilled is used. By unskilled industries is meant those in which the work is the repetition of a single or simple operation, easily learned in a short time, and in which the knowledge of one part is not essential to that of another. In such industries the grade of ability and responsibility required is low and the wages correspondingly low. The low-grade skilled industries are those in which the work is rather that of running a machine than simply tending one, since the management requires a greater knowlege, and greater skill or care. The difference often consists in the cleaner and more desirable conditions of work in these industries, in the greater care required in similar processes, and in the existence of a large number of skilled occupations in the industry into which the ambitious employee may force himself. Furthermore, the grade of employee is higher; children under sixteen are being refused more and more. Employees constantly endeavor to pass from the mill of lower grade to that of the higher, where the wages for similar occupations are greater.

"These low-grade skilled industries do not require a knowledge of all the processes to be a first-class workman nor do the operations require a great amount of skill, and they are usually learned in a few months at the most. Here lies the distinction between this grade of industry and the high-grade skilled industry. In the latter a high grade of skill is required in any one occupation, and must be acquired by some years of training and experience. Or an acquaintance by the employee with one occupation in the industry is often essential to the knowedge of another, while skill in all parts of the business must be had by a large number of employees."

The investigations show that the grades of industry entered by the child between fourteen and sixteen are of the lowest order. "Thirty-three per cent of the children of this State who begin work between fourteen and sixteen are employed in unskilled industries, and sixty-five per cent in low-grade industries; thus a little less than two per cent are in high-grade industries."

A special study was made of the conditions existing in the textile centers of North Adams, Lowell and New Bedford. The results of these indicate that "five-sixths of the children in the cotton mills have not graduated from the grammar schools, and a very large proportion have not completed the seventh grade, while practically none of the children have had high-school training. All of these children are by no means from the poorest homes; in fact, there are twice as many in what we have classed as good-grade families as there are in the second-grade. Neither is the appreciation of education of a low grade. Forty per cent of these families have shown a decided interest in a school which would give their children wage-earning powers, and have declared they wanted their children to remain in school; and, what is more tragic, sixty-six per cent of them could have kept them there."

The report emphasizes the fact that it is dissatisfaction on the part of the child which takes him from school, and ignorance on the part of the parent which permits him to enter the mill. It is in the low-grade industries like the cotton mills that the largest immediate return is open to the fourteen-year-old children, but it is precisely in these industries that the chance for advancement is least and where the maximum wage is most quickly reached. The better occupation will not receive the young child at all, or wants him with more schooling, or offers such a low initial wage that both child and parent turn to the mill, with its greater present wage opportunities.

A fact noted again and again in the report is that the boy who has remained in school until sixteen years old, not only has better chances of being admitted into a higher grade industry, but when entering a low-grade industry very quickly overtakes the boy who has entered two years earlier at fourteen. It is these facts brought out at so many phases of the inquiry, "that neither power nor advantage is gained by entering the industry at an early age; that the child who does enter closes behind him the door to progress to a fair living wage; that that child associates himself with our most undesirable population; that the work performed by the children is passing gradually to poorer and poorer classes of foreigners; that industrial education or education of any kind will mean that the children will not enter the industry,"—that lead to the definition of the years between fourteen and sixteen as the "wasted years" to the boy who enters industries. Among the employers, a growing reluctance was found, even in the cotton mills, to admit children under sixteen, and in a large number of cases the employer declared strongly for the advantage of more education for the child, and in a lesser number of cases for

general industrial training. In the woolen mills where the conditions of work are cleaner and better, very few firms express themselves as wanting children under sixteen.

The conditions in four commercial centers of the state were studied and 2,794 children looked up. In these centers the perplexing problems of juvenile employments with their evil influences upon character and lack of a "way out" is analyzed. In the case of the department stores, 36 per cent of the children employed are graduates of a grammar school. The ability of the family to provide further training is set down at 85 per cent, while about 50 per cent expressed a desire to have their children learn a skilled trade. The situation here is worse than in the mills, a certain small immediate return but no opportunity for advancement.

Two shoe centers, (Brockton and Lynn) and one jewelry center (Attleborough) were investigated. In these places children under sixteen were not admitted in large numbers to the important factories. The grade of families in these towns is high, the labor is stable, but the percentage of grammar school graduates is low, from 28 per cent, to 32 per cent. The percentage of those families which could and would patronize industrial schools is very large. Indeed, the attitude for industrial education in these towns is stated to be almost a demand for it.

The case of boys entering skilled industries was a matter of special study. It is stated that practically all employers in such industries declare that they do not want the boy before he is sixteen, but it is to be noted that quite a large number are reported below that age. Even in those skilled industries as machinery, printing, ship-building, glass and silverware manufacture, grammar school graduates figure in but small proportion—less than a third—and high school representatives less than one-twelfth.

Few figures are given to indicate the exact proportion of firms in these industries taking apprentices, but it is stated that many industries and many firms do not take apprentices at all. It is also noted that many boys enter these industries as helpers, learn one process and there remain. These observations are vastly more important than the statement that thirty-two out of the eighty-five of the firms visited take apprentices, inasmuch as by far the greater proportion of boys going into industrial establishments, even where some apprentices are taken, enter as helpers, and as far as instruction goes, learn but one thing.

It is rather a pity that room could not be found in the report for more than a passing reference to the apprenticeship school maintained by the General Electric Company, at Lynn, inasmuch as this plan repre-

sents probably the only example in the State where an earnest, intelligent and highly successful attempt has been made to adapt the apprenticeship system to both the limitations and the requirements of modern industrial conditions.

A comparison is attempted between the wage value of boys trained in the shop and in so-called technical schools, but the value of this comparison is rather vitiated by the fact that a very small percentage of the graduates of the very few schools that deserve the title of techical school become workmen in industrial trades, and, furthermore, that still fewer remain as workmen for any considerable time. The technical school does not deal with the material that is to become the journeyman and does not train primarily for such positions. For these reasons it is not the type of school to compare with the training gained in practical work.

In summarizing the results of its studies the sub-committee points to certain main elements of the situation, among which is the fact that there is a very close relation between the age at which children are admitted to the industries in any place, and the length of time they remain in school; that the class of family has little to do with the child dropping out of school, but in the great majority of cases he leaves school from choice and not from necessity; that choice of vocation for which the child is best fitted is impossible for those entering work below sixteen; that such industrial employments lead to nothing; that opportuities in skilled industries under present conditions are limited to a few.

The attitude of parents and ability of families to maintain children in school beyond fourteen is also summed up and the committee report that 55 per cent of the families visited expressed themselves in favor of industrial-school training and from the study of their financial status the deduction is made that 76 per cent of the families are capable of giving their children industrial training if persuaded of the advantage.

Three significant tendencies in the employer's attitude are noted: first, the growing feeling that the employment of children is a great disadvantage; second, the growing tendency to demand experienced help and to refuse all apprentices and younger help; third, resulting from these, a growing approval of the idea of teaching the principles of the trades.

Finally, the inadequacy of present schools to perform this service is noted. With barely fifty-two (it should apparently be sixty-four) out of 2,437 manual-training students on record in the mechanical trades, it is clear that the manual-training high school is not meeting the need.

The technical high schools, it is claimed, do not train workmen but

officers of the industrial army. This reference would have much more meaning and weight if the institutions referred to as technical high schools were defined and differentiated from the manual training high schools. In one place the California School of Mechanic Arts is referred to as a technical school and in another as a trade school, while the Boston Mechanic Arts High School, the St. Louis Manual Training High School, the Baltimore Polytechnic, and the Brookline Manual Training School, all examples of the regulation manual-training school are referred to as technical schools.

Taking into account the actual facts of the situation this reference has very little value except to draw attention to a form of school that is just beginning to appear and which seems destined to become a very important element in our educational system. The conviction is developing in many minds that the logical destiny of the manual-training high school is to become in truth a technical school, frankly recognizing a vocational aim, and while this tendency is yet taking form in but a few schools, notably in the Springfield school, it is nevertheless very significant to find it recognized in this important study of the situation.

The short-course trade schools are referred to, but not in a very illuminating manner, inasmuch as these schools as classified in another part of the report represent two very diverse types: the trade schools for young men like the New York Trade School, taking students between seventeen and twenty-five, and the trade schools for girls represented by the Manhattan and Boston Trade Schools, admitting students at fourteen, whereas, the comments made relate only to the latter type and give but scant recognition to the very positive merits of these schools. The positive deductions as to the desirable type of school made by the Sub-committee are not as full or detailed in their specifications as might be wished, but are fairly definite notwithstanding.

The pronouncement is here, as follows: "The development of policy in the industrial world and the experience of educators shows that the productive power of the child before he is fourteen is negative, and that it has not the power to handle anything but the simplest processes in the simplest and smallest way; that from fourteen to sixteen he is of productive power only for the large processes of manufacture, or for errand work: but that the child in those years, by teaching, may gain the principles of industrial work, which may be put into practice after sixteen; that, therefore, the training before fourteen should be in the simpler practical lines only; that between fourteen and sixteen it should combine the practical training in specific industries with academic work as applied

to the industrial problems, to develop intelligence and responsibility."

In another place they say of such a school, "it must take the child at fourteen and not wait for him to graduate; it must give him academic work more closely related to the specific industry; and it must not attempt to give him all of the academic work that is at present given in the regular high school, and shop work besides."

Such schools would indeed appear to be a very important need of the situation to-day and one absolutely unprovided for at present, except the two above mentioned schools for girls. Such schools would not be true trade schools, but by taking the boy at precisely the most impressionable period mentally and physically, they could contribute enormously to his future industrial opportunity and efficiency. In such schools the hands would be so cultivated in manual skill and the mind enlarged in industrial intelligence that the boy could go forward in any line of industrial work with marked advantage. Such schools would greatly increase the economic desirability of a boy to any employer and would enhance his chances of entering a high-grade industry, as well as of future advancement.

The conclusions of the Commission issued in two lines of recommendations; the first of these relates to the public schools and is in part as follows: "That cities and towns so modify the work in the elementary schools as to include for boys and girls instruction and practice in the elements of productive industry, including agriculture and the mechanic and domestic arts, and that this instruction be of such a character as to secure from it the highest cultural as well as the highest industrial value; and that the work in the high schools be modified so that the instruction in mathematics, the sciences and drawing shall show the application and use of these subjects in industrial life, with especial reference to local industries, so that the students may see that these subjects are not designed primarily and solely for the academic purposes, but that they be utilized for the purposes of practical life. That is, algebra and geometry should be so taught in the public schools as to show their relations to construction; botany to horticulture and agriculture; chemistry to agriculture, manufactures and domestic sciences; and drawing to every form of industry."

"The Commission would also recommend that all towns and cities provide, by new elective industrial courses in high schools, instruction in the principles of agriculture and the domestic and mechanic arts; that in addition to day courses cities and towns provide evening courses for persons already employed in trades; and that provision be made for the

instruction in part-time day classes of children between the ages of fourteen and eighteen years who may be employed during the remainder of the day, to the end that instruction in the principles and practice of the arts may go on together."

The second line of recommendations which takes the form of a bill submitted to the legislature represents a plan for furthering the development of independent industrial schools through a state Commission of Industrial Education. This bill which is now before the legislature authorizes the Commission to "initiate and superintend the establishment and maintenance of industrial schools for boys and girls in various centers of the State, with the co-operation and consent of the municipality involved." It also provides that the State assist the municipality in the support of such schools by paying a certain proportion of the expense of maintenance. The establishment of a system of schools parallel and supplementary to the public schools under independent control would seem at first to be rather revolutionary, but as the Commission points out it is in accord with the present state support of normal, art, technological and textile schools. Furthermore, such an arrangement has many very practical arguments in its favor. The traditions of the public schools lean overwhelmingly toward the cultural idea as against the vocational, and against this attitude provisions for industrial work will gain ground but slowly.

Again, the public school system stands for the "open at the top" idea, while the establishment of industrial schools means not the general training which opens toward the university, but a special training for a special class for a special place in the social order.

Furthermore, the training and equipment of superintendents and other officers directly in charge of public school work does not fit them to deal most effectively with the proposed new order of schools. Such schools present a very special set of problems which require special knowledge and experience for their solution. On the whole such schools are more apt to reach speedy and successful development and to attain effective adjustment with the industrial situation, if guided by a central expert authority with a main purpose clearly in view, rather than under the administration of inexpert school boards and superintendents. Massachusetts is at present somewhat behind certain other states in provisions for industrial education. The passing of the proposed bill would place her in the lead of this enormously important field of social and economic endeavor.

To students of the manual-training problem the report is tremend-

ously suggestive. We are slowly beginning to perceive that in one aspect manual training is but one phase of the larger problem of industrial education, is, in fact industrial education within the limitations of the public school. From this point of view it is obviously, necessary if manual training is to play its part most efficiently, that its exponents have a clear outlook over the whole field, its present activities and its tendencies. To this outlook the Massachusetts report makes a most valuable contribution.

MANUAL TRAINING HIGH SCHOOL, SAGINAW, MICH.

CLASSROOM PRACTICE IN DESIGN.[1]

JAMES PARTON HANEY.[2]

ANY discussion of classroom practice in applied design, naturally divides itself into a consideration of the problems to be solved and the methods to be employed in solving them. The sequence of problems constitutes what is familiarly known as the course of study, and to the principles which underlie such a 'course' the present article will be devoted, questions as to methods being left to a succeeding chapter.

The principles may be stated as follows: (1) The designs made must be for use. (2) The forms decorated must admit decoration. (3) The designs must be based on structure. (4) Their treatment must be conditioned by material. (5) They must permit individual interpretation. (6) Each problem in the sequence should develop through a similar series of steps with increasing complexity in the relations of the elements employed.

THE DESIGN MUST BE FOR USE.

All designs made should be for use. This principle is the first and most important consideration in the teaching of applied design to young students. When design is taught as a series of abstract patterns, or when problems are developed which are not applied, but remain "paper" patterns, the work is taken out of the realm of the real and becomes a mere school exercise. In this guise it is robbed of half its interest, and more than half its value. Until the pupil is brought into contact with the form to be decorated the real problem of design is not presented,

Teachers whose habit it is to teach design through formal exercises are frequently astonished and discouraged to see their pupils who have been schooled in abstract principles, work out for their own delectation wierd naturalistic decorations for pillows, tidies, book-covers and box-tops, in fancy stitch or pyrographic line. Dismay is felt that previous teachings have made so little impression, but the truth is they have not been teachings. The school work has not been real work. The design taught has not been seen by the pupil as real design, but only as a school design to be done and laid aside without a thought,

[1]This article forms a continuation of the series of articles on Applied Design which were concluded in the January number of the Magazine.

[2]Copyright, 1906, James P. Haney.

when one comes to decorate something one really wishes to be "fine" or "pretty."

The moral of this is evident. Design is an agent chiefly of value for the teaching of taste, and taste is not to be taught as an abstraction. It must be developed as a power to discriminate between things good and bad, as they surround us in our daily life. The lessons through which it is taught must be lessons dealing with concrete models, and the decorations made must be seen as essential to the success of the forms decorated.

Some teachers object to this approach because they feel that so few designs may be made for actual application that their work, if limited to these, would be hampered and restricted; they would prefer to have the whole field of the Arts—cabinet-making, iron-smithing, textile weaving, and the like—in which to roam with their tyros. Such objection is short-sighted. Any careful scrutiny of classroom conveniences, of forms made in school workshops, or commonly devised for gifts at holiday-time, will soon convince one that in these objects is opportunity for teaching the principles of design, in problems much more significant to the child than cabinets, gates, weaves, and wall papers, never to be developed further than the paper on which they are drawn.

To make the teaching of design live teaching, it must rise from life. The course of study should condition the difficulty of each pattern, but necessity should determine the thing for which the pattern is made. That thing when furnished should play a real part in the life of the maker. School designs, like designs made out of school, should rise from necessity, and disappear—worn out—in use. The teacher who fails to see this must always fail to secure vitality in his work. Though the finding of suitable problems may at times offer some difficulty, it is his very business to discover them, and to lead to them by natural paths.

The most satisfactory conditions are present when the work in construction and design can proceed hand in hand, the earlier exercises in 'making' taking the form of useful models in paper, cardboard, textiles, leather, or thin metal and the later in wood, in clay or in forms of book-binding. Many schools, however, have no course in constructive work. Under such circumstances it will be necessary to develop forms to be decorated out of paper in simple fashion. There follow a number of these: program cover, honor roll, menu, book-plate, class motto, book-cover, book-mark, portfolio, poster, invitation card, decorative shields for school festivals, etc. Other objects, as doilies, mats, curtains, table covers, etc., may be very simply made of linen, canvas, denim or other

textile. More advanced types of models suitable for decoration are shown in Fig 1.

FORMS DECORATED MUST ADMIT DECORATION.

Not all constructed forms may be decorated with propriety. In general it may be said that only those may be so treated which themselves serve a decorative purpose. The use to which the model is to be put controls in large measure its decoration, for all decoration must be subordinate to utility.

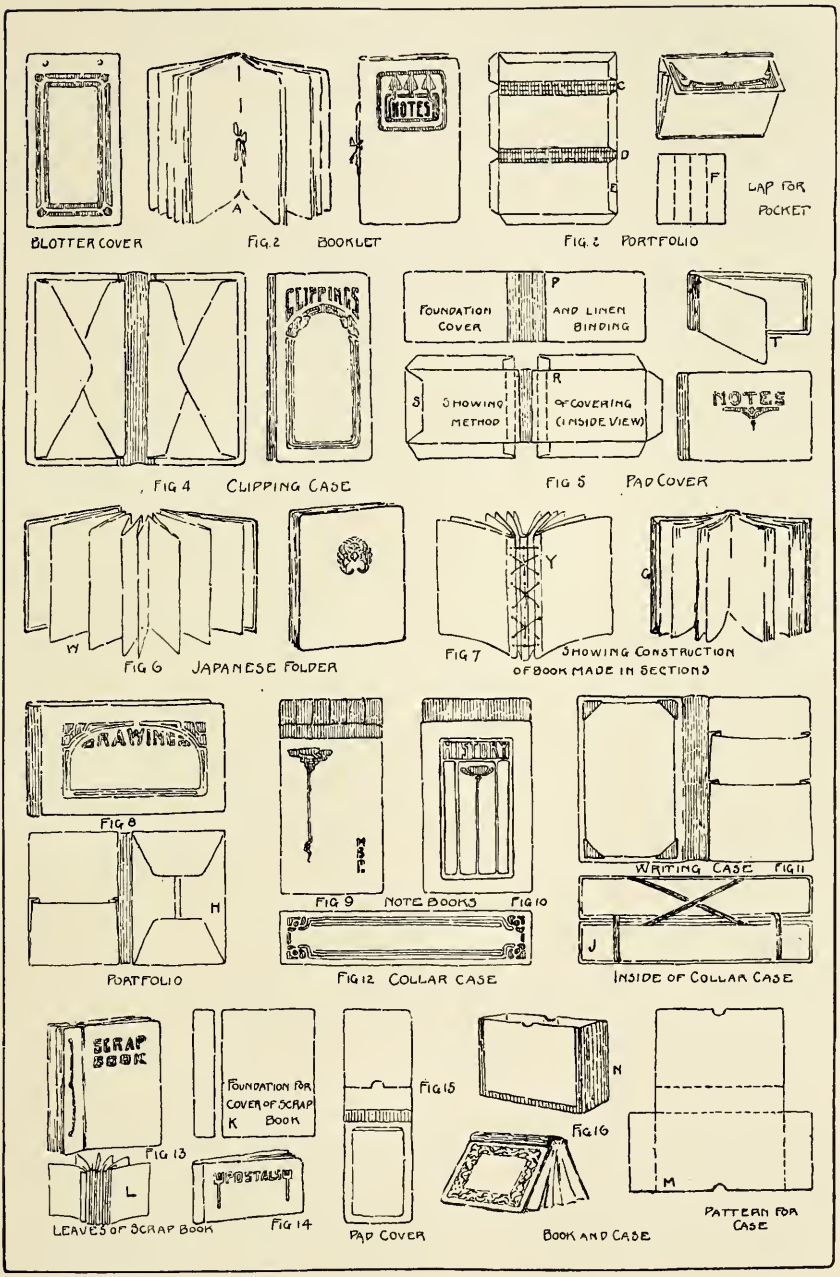
Decoration is for interest's sake, but when added it should serve to increase interest legitimately, without making an exaggerated plea for attention. The enrichment should seek to catch and charm the eye, by play of light and shade or color, by harmonious masses and quaint conceits of pattern. The form decorated must not war with its surroundings. The paper knife which is to lie upon the drawing room table may have its handle carved or inlaid, while the handle of the kitchen knife should be devoid of ornament, that it may be readily cleansed. The kitchen box to hold salt or spices should be of the plainest description, while the library rack to hold paper may, in keeping with its surroundings, be soberly enriched.

Included in the list of forms which may be properly decorated under the conditions stated above, are various shapes and sizes of posters, mottoes, cards, covers, doilies, bags, pillows, books, portfolios, cases, boxes, racks, brackets, frames, trays, stands, etc. Some of these forms may be cardboard, some textile, some wood or metal. The box is a type. It may be made of heavy paper, or of cardboard covered with textile, or of wood or metal. Its design may be a simple decoration of lines or straps, or an elaborate pattern in repousse or carving. As it may thus be made to serve in various situations so many of the other forms suggested may be adapted to the needs of different classes.

WHEN NOT TO DECORATE.

In general it may be said that the lowly form, or one subjected to constant use, to wear and soil should not be decorated. The following, sometimes selected by class teachers for decoration are therefore, better undecorated: Foot-stool, knife-box, flower-stick, string-winder, key-tag, etc.

The question as to the part it is to play—its use or function—is the one determining whether a form is to be decorated or not. The object whose function it is to be interesting and attractive may have such interest enhanced by applied pattern; that which plays the part of a drudge,



By J. C. Cremins. FIG. I.

one soiled by constant handling may, indeed, should be good in its proportions, but unadorned by fret or arabesque.

THE EXTENT OF DECORATION.

Over decoration is more to be feared than under decoration. There should be a fine reserve shown in the design which is applied. It should not make an insistent call for attention by huge growths, eye-wearying interlaces, or a twinkling chequer of lights and darks. There is a beauty in quiet spaces. The effort should be to secure the minimum of pattern which will suffice to make the form interesting and save it from the charge of being "empty."

There need be little fear of making designs "too simple;" the less involved, the more the fine relations of lines and spaces stand out. That pattern which consists merely of a strap or two emphasizing the outline of a square, and blossoming here and there into a flower or fret, will tax the skill of the best pupils. The use of a "strap" as a decorative element, is, by the way, much to be commended. It serves to accent edges and develops equally well into formal fret or conventionalized leaf or flower. Patterns so devised may be incised, carved, stained, or treated with any special tool. They are useful on wood, textile, clay or metal, and form one of the most serviceable and appropriate types of design which may be developed in the classroom.

THE DESIGNS DEVELOPED MUST BE BASED ON STRUCTURE.

The structural elements of the form decorated should always appear as the basis of the decoration. The design should be seen to rise out of the structure, the model appearing to demand the decoration, rather than to exist merely for the sake of being decorated. The decoration should serve to give structural emphasis to the form; boundary lines should be strengthened by it and corners supported. Each model should be carefully considered from the standpoint of structure, and joints, edges, feet, locks, hinges, all those things which particularly characterize it, should be examined to see which offer the greatest advantages as points of force, "start" or "growth" points from which the pattern may spring.

It must be the effort to make the decoration appear as an intrinsic part of the model. The form itself must condition the design and such design must not take precedence over the function of the object. The latter must still declare itself, rack, mat or box-top. The design must support and strengthen the idea of function while it serves to create a greater interest in the surface on which it is placed.

The illustrations of this law are various. The suggestion of a design for a book-cover may, for instance, be gotten from the stitches which hold the leaves together (Fig. 7), that for a box from the edges, feet and lock escutcheon of the model (Fig. 8). Racks which stand, may properly have the design rise from the points on which the pressure comes, while forms which are to hang should have their pendant

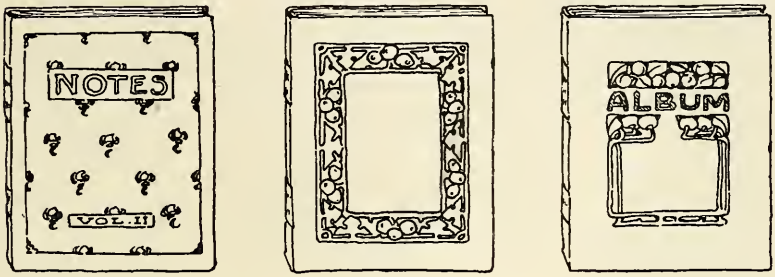


FIG. 2.

quality made plain. Others which are to enclose a space, as dishes, trays, etc., may have this holding quality indicated, the pattern aiding, as the sides of the form itself, to contain the things within. The portfolio held together by metallic fasteners may have the design spring from such points, while the closet door hung on hinges may have the latter extend into ornamental bands that divide the door into interesting spaces and call attention to the points which support the form itself. (See Figs. 3, 4, 5.)

No part of the development of applied design calls for more attention than the question of structure. To be in a position to guide pupils aright, the teacher must learn to see all forms in terms of structure, and must call upon his class to interpret and reinterpret models in great variety, in such terms. Applied design must, in its teaching, be based upon a power of analysis, a power of dissecting constructive elements and of supporting them with decorative motifs, which by their force and movement display the structural excellence of the model whose beauty they seek to enhance.

It is to be remembered, however, that no one pattern exhausts the decorative possibilities of any given form. Constructed forms possess divers structural elements, some of which may be emphasized by one pattern, some by another. The book-cover may thus have its back or binding quality developed in one design, its edges and corners strength-

ened in another, or the oblong nature of the surface treated in a variety of ways in others still. Yet all of these designs may be in perfect structural propriety. (Fig. 2.)

That pupils may be led to appreciate this fact, it is well, in practice, to consider various possible methods of decorating any given form, basing each upon a different characteristic of its function and structure. It will

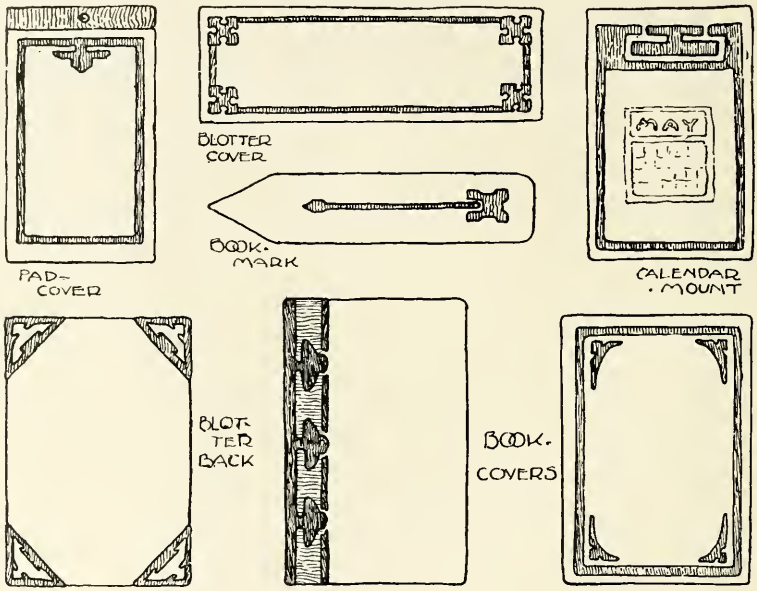


FIG. 3.

also be of advantage to require them now and again, to plan or sketch without assistance a variety of suitable patterns for some form they have not previously considered. Their designs they should then be required to explain and defend agreeable to the law of structure. The habit of self-criticism thus developed forms one of the best methods of learning what makes for sound practice.

THE TREATMENT OF DESIGNS MUST BE CONDITIONED BY MATERIAL.

Where the models decorated differ in the material of which they are constructed, the applied patterns must also differ in their treatment. The finer and smoother the texture of the material, the more delicate must be the elements of the design. A coarse surface, as canvas or bur-

lap, necessitates a broad and simple treatment, while a finer and more resistent surface of metal or of leather, must have its design planned with consideration for the light and shade produced by the tooling.

Natural beauty of texture must not be destroyed by the decoration. Applied stains should thus serve in the case of wooden models to bring

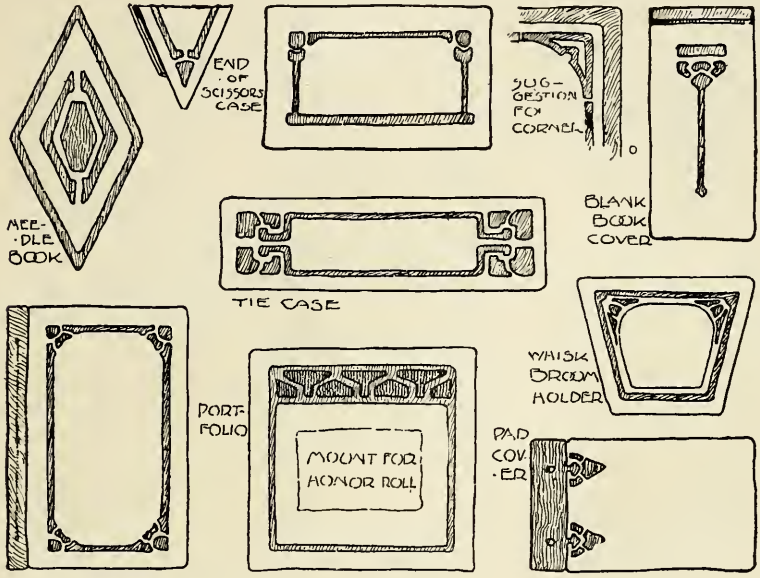


FIG. 4.

out the grain and not to conceal it. Large designs and those which are to carry some distance, as borders for tablecloths, piano covers, curtains, etc., will as a rule require simple, yet forceful treatment with masses of good size, and strong connecting lines.

So far as possible, a course in applied design should include work in more than one material. No one can truly be said to have a knowledge of the subject until his experience has brought him into contact with a variety of textures, and he has learned the limitations which texture enjoins upon pattern. No design can be transferred unchanged from one material to another, for each translation must see a re-adaption made necessary by the new material.

PROBLEMS MUST PERMIT INDIVIDUAL INTERPRETATION.

This principle, it would seem, might almost go without saying, yet a word relative to it may not be amiss. It is in the possibility of making

each pattern the designer's own that one of the chief advantages of the subject appears. It is through failure properly to govern this personal element that one of the chief difficulties in teaching is experienced.

All problems offered should aim to present the elements to be modified in very conservative and carefully considered fashion.[1] In the earliest exercises, the personal equation should play a restricted part.

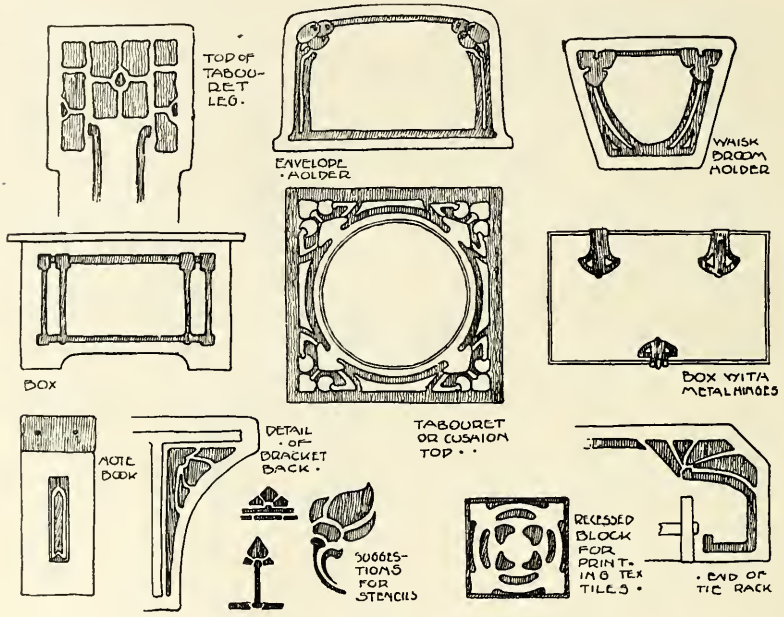


FIG. 5.

Only one or two lines or spaces should offer for modification and the solution of the problem should turn upon the treatment of such line or space. As the pupil progresses, he is to be allowed more and more latitude until he finally determines the size, shape and arrangement of spaces and their development into conventionalized forms of more or less complexity.

It is well to remember when a class "goes to pieces" in its efforts to devise original designs that the chances are all in favor of the real short-

[1] Lack of space makes it necessary to leave for future discussion, all questions of Constructive Design including those dealing with individual modification of forms in proportion and outline.

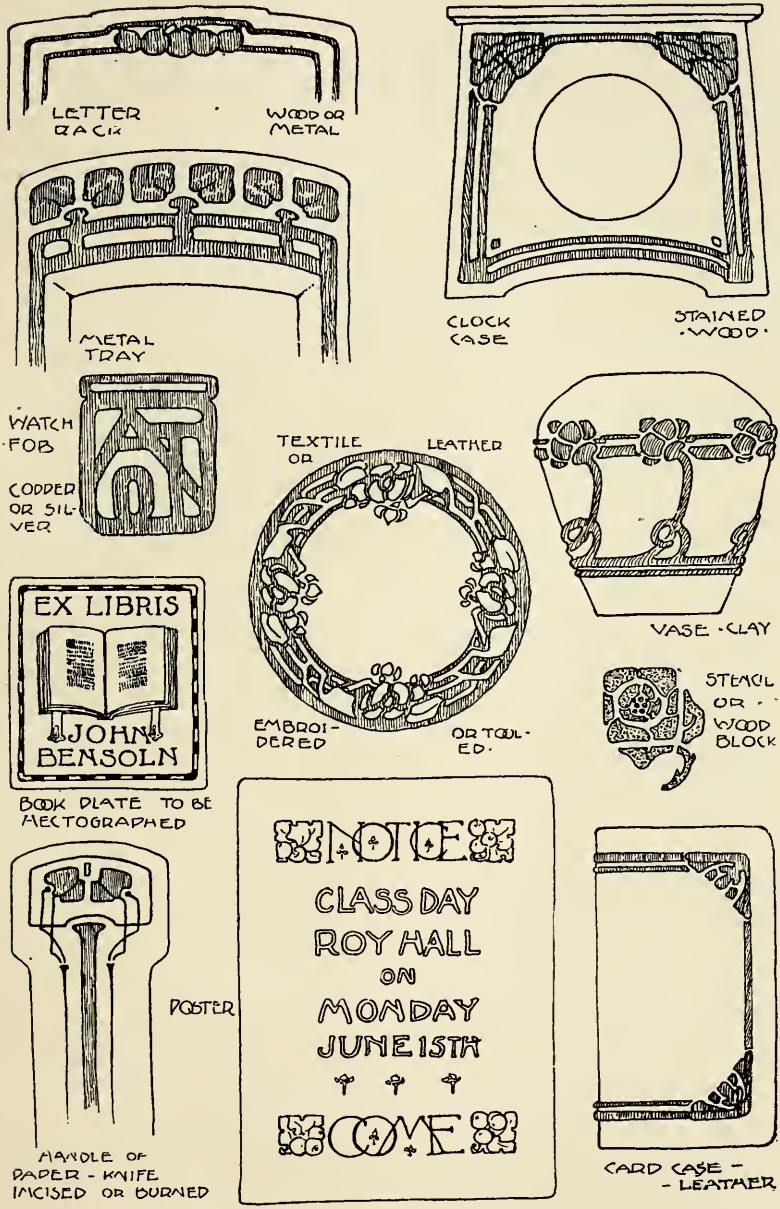

LETTER RACK
WOOD OR METAL
METAL TRAY
CLOCK CASE
STAINED WOOD
WATCH FOB
COPPER OR SILVER
TEXTILE OR LEATHER
EMBROIDERED
OR TOOLED
VASE - CLAY
EX LIBRIS
JOHN BENSOLN
BOOK PLATE TO BE MECTOGRAPHED
STENCIL OR WOOD BLOCK
NOTICE
CLASS DAY
ROY HALL
ON
MONDAY
JUNE 15TH
COME
POSTER
HANDLE OF PAPER - KNIFE INCISED OR BURNED
CARD CASE - LEATHER

FIG. 6

coming being chargeable, not to the pupils but to the teacher, who did not sufficiently guard the problem in its statement, but permitted so many opportunities for individual treatment that a multiplied series of errors became possible. The problem which proves too difficult is one in which there are more elements than the teacher can properly consider and review in the work presented for criticism. A limited field for the beginner does much to insure successful class-work. Illustrations of the increasing part which the pupil may be permitted to play appear in the outline which follows:

EACH PROBLEM SHOULD DEVELOP THROUGH A SIMILAR SEQUENCE OF STEPS.

No very sharp lines serve to distinguish any one series of problems from those which follow. In the general sequence it has been the effort to illustrate several groups of problems in which the same principles are presented in designs applied to a variety of forms, the problems within each group being about of equal difficulty. In developing a course of study three or four examples from each group should be offered to the pupils before those of the succeeding groups are attempted.

Especial attention is called to the fact that the world of applied design teems with examples of arrangements of masses perfectly suited to the purpose of the elementary teacher, if the latter but offer them in simple form, without the involved conventionalized matter of the originals. One on the outlook for good mass arrangements will find scores to supplement those shown in Figs. 3, 4, 5 and 6, many requiring little change to adapt them admirably to classroom use.

Group I. These problems (Fig. 3) offer (1) a given space (2) to be decorated by a given unit or series of units (3) arranged in a given manner and (4) requiring only modification of the outline of the unit or repeat.

The emphasis in these problems is to be placed on the change in the single side of the unit, which may be cut from folded paper, unfolded and traced as often as may be necessary. Many illustrations of good units should be offered to the pupils, each of whom should cut out several and choose the best for use.

Group II. These problems (Fig. 4) offer (1) a given space (2) to be decorated in a given manner, (3) requiring in the simpler problems that the mass be broken up without modification of outline, and in the more advanced, that the mass be individually modified as to size and placing, and as to width of connecting band, if such is to be used.

The emphasis in these problems will fall on the development of simplicity and strength in the lines which break up the mass. The prin-

ciple of growth will be shown to underlie the good division of masses, and solutions showing twisted and uncertain dividing lines, and numerous and badly related elements will be deprecated.

Group III. These problems (Fig. 5) offer (1) a space whose proportions are to be determined by the pupil, (2) the space to be decorated by masses individual as to size, outline and placing, (3) and broken up or developed in minor elements individually treated.

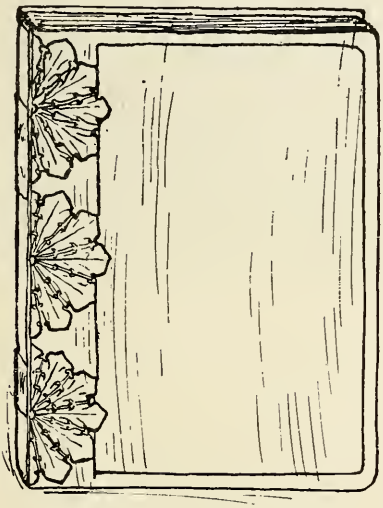


FIG. 7.

The effort in these problems will be to secure simplicity and dignity of treatment. In the case of each, the pupil's attention should be directed to the various masses which contribute to the design, and in criticism of his own design he should be called upon to review the relations of such masses to one another, in the terms of balance, rhythm, variety and unity. His attention must also be strongly drawn to the principles of structure. Hitherto the structural success of his designs has rested upon the teacher, who offered the masses ready for modification; now the pupil must seek to secure such structural quality for himself.

Group IV. These problems (Fig. 6) offer spaces similar to those in Group III, to be decorated by masses planned in individual fashion and developed with simple conventionalized matter.

Relations and structure are to be emphazied and efforts made to secure subject matter, individual in treatment and marked by subtle rhythms and fine proportions. The conventional elements will, for the most part, have to be developed from charts of natural forms, and some practice in adapting the natural forms to different spaces will be required, before the masses can be filled with success. In connection with these problems the laws of growth must be developed, and consideration given to the forms of conventional treatment suitable to the different materials (wood, textile, leather, metal) which present themselves for decoration.

The range of school work is completed in this group. Pupils who can successfully solve the more advanced exercises are possessed of principles having a wide range of application. They should, to a reasonable degree, be prepared to analyze and state the excellencies and defects of any pattern placed before them. This power is well worth striving for, be the possessor's future station and occupation what it may.

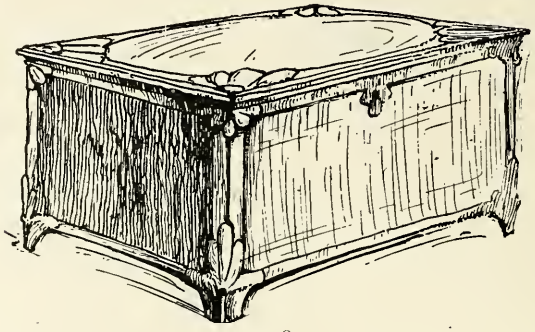
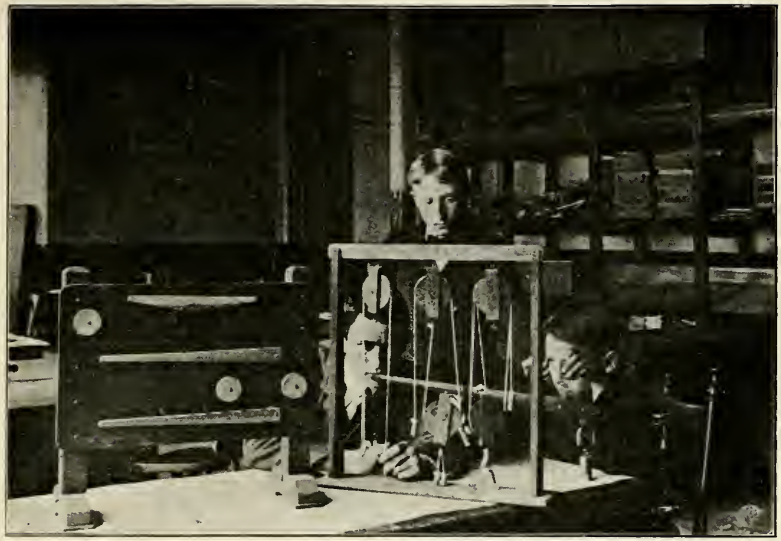


FIG. 8.



SHOPWORK IN THE SCHOOLS OF MANHATTAN, NEW YORK CITY.

II—MODELS AND METHODS.[1]

GEORGE FREDERICK STAHL.

Three forms of models are made in the workshop,—practice models, communal models and those which are decorated. The course is not arranged in a fixed outline, but is constantly changed as occasion requires.

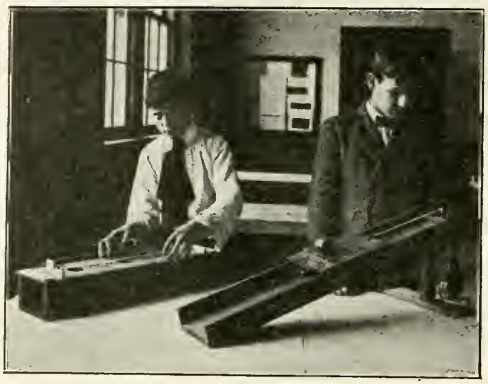
The practice model introduces the boy to the tool work of the term. It is designed to give him insight into the processes which he is to employ in his decorated form. Each shop term is six months long and the practice models are introduced at the beginning of the first term of the seventh year and again at the commencement of the second term. In the two terms of the eighth year communal exercises are made in place of the practice forms.

The practice models themselves are useful forms. In the whittling classes of the sixth year they include the plant label, the pencil sharpener, string winder, letter opener and emery stick. The boys in the first term of the seventh year make a marble board and blotter holder before

[1] For first article of this series, see MANUAL TRAINING MAGAZINE, April, 1906.

they proceed to the decorated form, while in the second term of the same year, a flower pot stand and a quoit peg or Christmas tree stand serve to introduce the half lap joint.

In the development of these models emphasis is placed on the three points of analysis, demonstration and execution, and care is taken that the lessons do not degenerate into merely dictated technical drills. The intimate relationship which exists between a working drawing and its model is for some pupils difficult of comprehension. They are unable to connect the different faces of the object with the views. Care is taken therefore, that every pupil is prepared to read the working drawing of his form before he begins its construction, while the tools he uses and the nature and kind of material are made very clear before any tool work takes place.

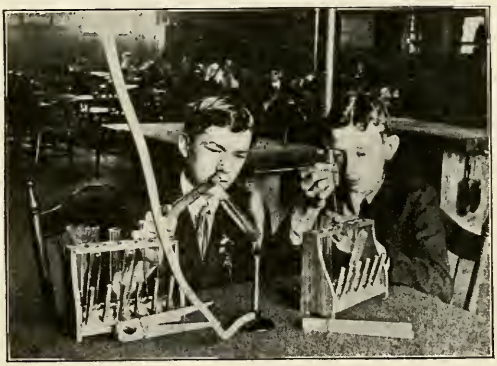


The demonstration of a model is divided into a succession of steps. After the first explanation of these, different pupils are called upon to illustrate them to the class. Emphasis in the work is placed on the clarity and directness of the pupil's statement, and instructors are warned not to ask leading questions which require little thinking on the part of those who answer them. Execution follows the demonstration. In this is the crux of shopwork; it reveals to the instructor his success or failure in reaching his pupils. But the technical standards by which the work is judged are not set at impossible altitudes. Success in technique is to be spelled in terms of effort as much as in actual tool work. The standards erected are within the reach

of every careful workman, and as the models are primarily for the purpose of giving tool experience they are finished only with the tool.

THE COMMUNAL MODEL.

As has been noted, in both terms of the eighth year the practice model is replaced by the group exercise. The projects are made by several pupils each making a part. They are models primarily designed to be of use in the schoolroom and are planned by the different shop instructors in consultation with the director and the teacher of science of the eighth year. As in the case of the decorated forms, individual work is done in each shop and the models are changed each term. As forms, they are very popular with the pupils, the team play involved, exciting at once their interest and their sympathy.



To develop simultaneously several of these forms requires a high order of the executive ability on the part of the teacher. Each model must be carefully planned and must have drawings made by the teacher of its parts. It is the practice to divide the class into groups of from three to six boys. To add interest to the work and to make it follow methods used in the trade world, a pupil foreman is appointed to direct the work of each group[1] as far as may be.

[1] A complete list of all the communal models made would be a very lengthy one. Those forms which follow are among the models made during the recent school term. They include, it will be noted, models useful in elementary science teaching,

Each group makes one model. To the different pupils are given the drawings of the parts and each is made responsible for his part, the work being done from the sketches. Much emphasis is placed on care and accuracy and each worker is made to see that the model cannot be put together as a whole unless his part is made true to dimensions. Some

of the accompanying illustrations show the pupils experimenting with models they have made.

THE DECORATED MODEL.

This decorated model consists of some simple piece of furniture, well finished, stained and bearing an applied design. One is made each term in each shop class and, to prevent repetition of the same forms, term after term, the shop teacher plans anew his decorated models at the beginning

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and mathematics, and other models valuable as pieces of classroom furniture: sonometer, organ pipe, sounding box, microphone, camera, color wheel, stand for meauring angles of reflection, stand for inclined mirrors, balance, pulley, lever, wedge, bridge, pendulum, variable inclined plane, deflective galvanometer, battery holder, vivarium, aquarium, caterpillar box, butterfly mounting board, plant press, window-box, root cage, trellis, specimen cases, egg box, collecting net, mineral case, terarium, table for holding apparatus, room or box with sides hinged, doll house, protractor, rule, yardstick, meter-stick, cube with movable parts to explain cube root.

of each term. Only models to which designs can be applied with propriety are developed as decorated forms.[2]

His projects, the teacher arranges in the order of their difficulty, different principles of construction being developed in each grade. In the Knife-work classes of the sixth year the models include only flat forms and those having butt joints. The latter joint is also developed in the forms made in the first part of the seventh year. In the latter half of seventh year the housed joint is introduced and in the eighth year the end mortise and through mortise joints are presented.

The interests and desires of the pupils are consulted by the shop instructor in planning the decorated forms. So far as possible, the model for each class is one which the boys of the class are particulary anxious to make. Before Christmas, those suitable for gifts are much in favor, the method of thus allowing the pupils to select the models they are to make being repaid in the fullness of their sympathy with the work. They look forward with pleasure and enthusiasm to the construction of the home model.

When the model is decided upon, the class teacher is furnished with a complete but unmodified and undecorated form. The shop teacher also advises with her and with the visiting drawing teacher in regard to the mechanical drawing which shall be made by the pupils, as a guide to him in his shop work. Although the term "decorated" is applied to this model, it is not to be understood that the decoration is the end and aim of its construction. The model is first of all to be a useful form, and one well built. It is chosen with a view to its decoration, that the design done in the classroom may have that interest attached to it which always rises when the worker knows he is doing something for use. Even when so chosen it is not intended that the decoration shall form the chief work on the model; its form is kept, as it should be kept, strictly subordinate to construction. It is intended that within its particular field, the decorated model shall show to the boy, in a very practical way, the meanings of the terms "propriety" and "fitness of decoration", as these are known to the artist artisan.

DEVELOPMENT OF THE WORKING DRAWING AND DESIGN.

Both working drawing and design are done under the direction of the

[2] The following is a partial list of models of this type made in different grades during the past year: key-rack, calendar, book, match box, whisk-broom holder, wine-glass holder, plate-rack, bracket, wall-pocket, hanging book-shelf, book-rack, letter-rack, taboret, jardiniere stand, inkstand, paper-and-envelope holder, card tray, clock case and boxes of various types.

class teacher. Under her guidance a freehand working sketch is made by each pupil. From this he proceeds to make a careful working drawing, changing the dimensions of the original model within limitations set by the shop teacher. Changes in dimensions, it may be noted, are not attempted until the latter half of the seventh year, but effort is made even in the sixth year to secure individual forms carefully modified in outline.

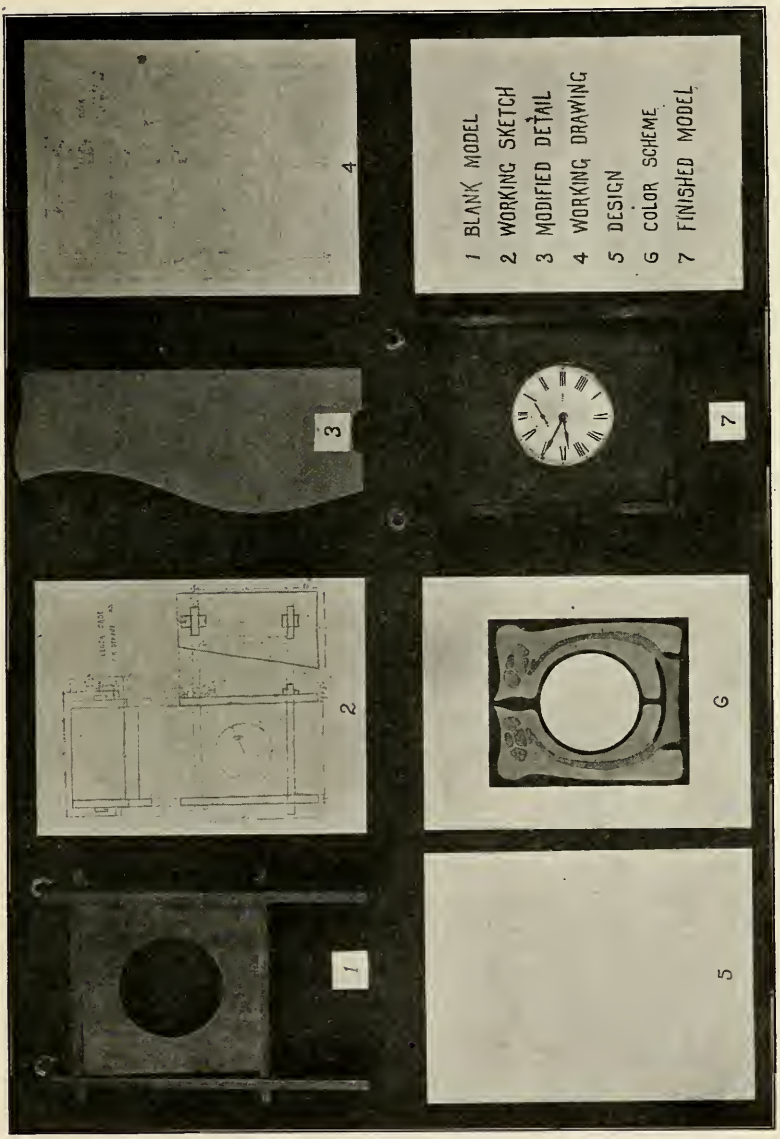
To allow the pupils to go to work blindly in determining the dimensions of the models would result in little benefit to them. Their attention is, therefore, called to the principles of structural design, to the facts that the use of the model determines its form and material, and that the desire for strength and beauty determines its proportions.

Both working sketches, and working drawings made from them are done in pencil. As a rule, duplicate working sketches are made and dimensioned, and are taken to the shop before the more elaborate working drawing is taken up. The latter is carefully made to scale.

The color scheme and decorative design for each model is worked out in the class room and, like the working sketch, is taken to the shop to be used. The designs are developed as mass arrangements, very simple in form and with structural characteristics strongly marked. These designs are developed on paper and are painted in water colors. Low-toned color schemes are sought, particularly those that show as a background, the deeper browns, olives and reds. In the shop, each model after construction, has traced upon it the elements which are to serve as decorations. These are then colored with water colors. The background is stained with oil-color thinned with turpentine, this staining being done either before or after the design is colored. In most cases, it is done over the design which has been stained in water color, the effort being made to have the completed model agree closely in its color scheme with the design which has been brought from the classroom.

Some details as to how this is done may prove of interest. The plan is as follows: A chart is prepared by the shop teacher, showing a number of colors low in tone that will serve well as all-over stains. For the most part these are the greens, browns, etc., previously referred to. They appear on the chart as slips of wood showing the effects of the stain, with the names of the oil colors which have been employed, written next each slip, while below is a parallel series of slips of paper showing the same hues made in water color, with the names of the paints which have been combined to make the desired colors.

The choice of color for the model is made by the pupils from any one of the samples. Examination of the chart shows him the necessary water



THE DEVELOPMENT OF INDIVIDUAL WORK.

colors which he must use, and with his palette before him he mixes and compares until he has reached his selected color. This is for the background of his design, and this he paints all over the design before proceeding to lay in the details of his pattern in complimentary or analagous hues. The development of a knowledge of color harmony is made in a very practical way. The boy is in this particular, as in others, made to feel that each step of his work leads forward to some direct end which he understands and sees to be good.

The course of the "home" or decorated model through the shop is one of ever increasing interest. Every effort is made to finish it in the best way possible. Whatever modifications the pupils may have made in the outline of the form are chiseled with the greatest care, and are finished with sand paper to the point where the ensuing stain shows no ugly lines or scratches.

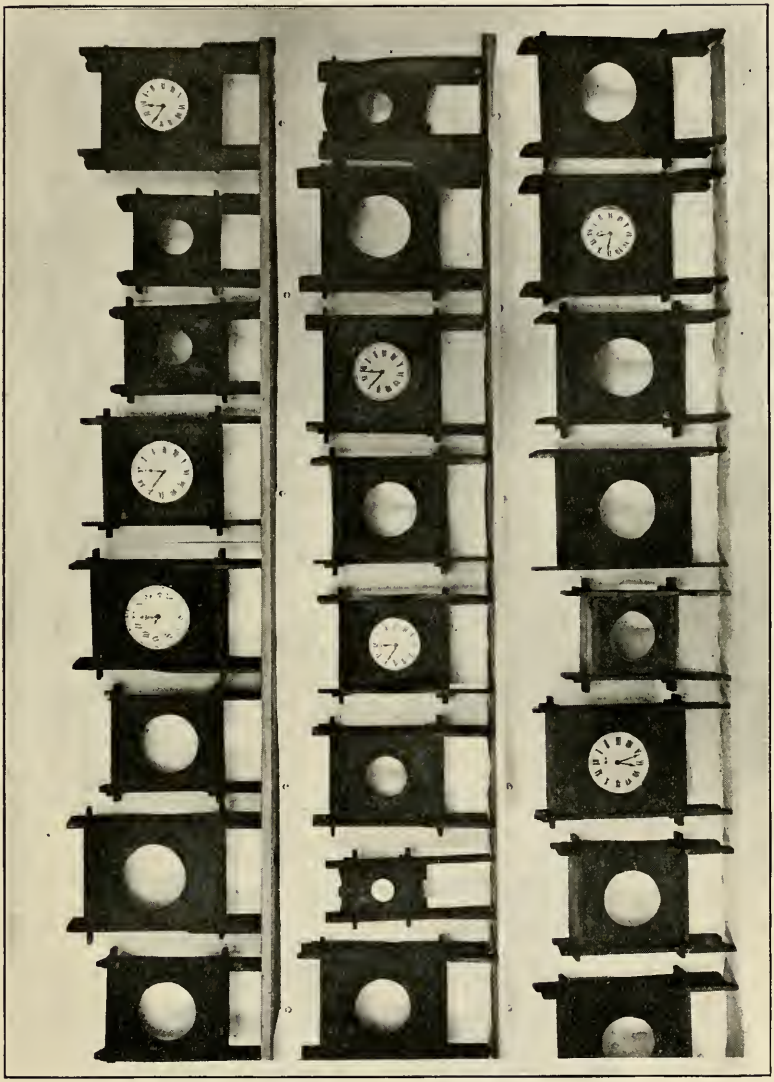
When the models are ready to be stained, the shop tables are carefully protected, and the cans of ground oil color are opened and the cotton waste set out. The boy now goes back to the color chart to determine the oil color necessary to match the ground work of his design. This color he will find it necessary to make in most cases by combination. If he has painted his background a dark green, he will find that the color chart directs the use of a light green first, and after this has been well rubbed in until the wood will absorb no more color, a stain of black is to be applied and rubbed over it. Following these directions, he finds it a simple matter to secure a green in his model closely matching the darker green with which he painted his design in the classroom.

The combination of the two oil colors used in staining the wood gives a beautiful tonal quality with a suggestion of translucence, which brings out the grain in a most pleasing way. Various combinations may thus be made, some shop instructors having developed very beautiful back ground colors through experimenting with single or double glazings as noted. To give additional finish to the model a line of India ink is drawn about the design. As a rule, background color and design approach one another closely in color value, so that this black line serves to sharpen the pattern and distinguish it from the background color.

Finishes are many. The simplest and most frequent in use is the wax finish. This, in the form of wax dissolved in turpentine, when well rubbed in with a rubber made of heavy cloth or carpet produces a dull lustre which is decidedly attractive.

SUMMARY.

Such in brief is a description of the work of the Manhattan schools.



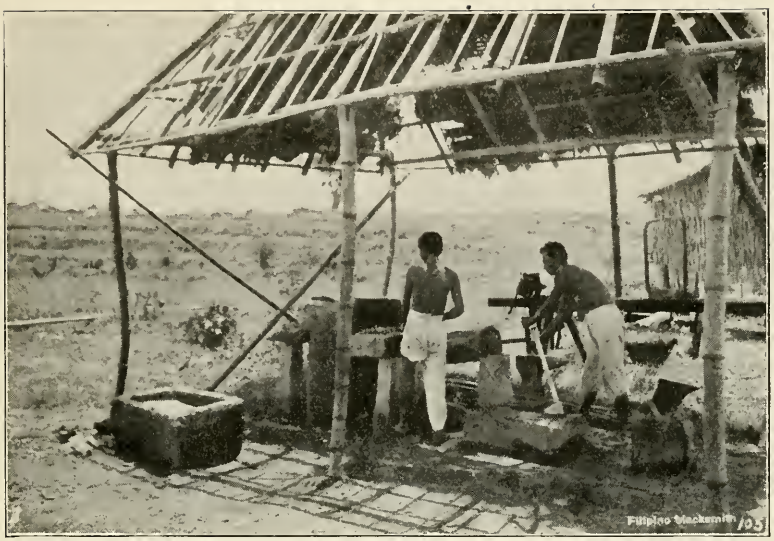
CLASS EXERCISE, SHOWING INDIVIDUAL MODIFICATIONS.

To give in detail the many devises used to increase the interest in the shopwork would unduly expand this paper. It is worth while, however, to note the development of working libraries for the use of pupils, the methods which are taken to interest them in papers like "*The Scientific American*", "*Amateur Work*", etc., and the bulletin boards on which are posted interesting illustrations of applied art and descriptions of interesting pieces of construction.

Each shop instructor devises for himself particular features of interest, but behind all this is the thought repeatedly urged in conference, that the shop be placed not merely for the training of the skillful hand and discriminating eye, but that it be a place where many interests center, where many seeds of effort are sown and many pleasant fruits are gathered.

The scheme of work which has been described is one designed to meet the necessities of the growing child—his desire to make things, his desire to know why they move and how. "It causes the child to become conscious of his powers through the variety of uses to which he can put them and thus become aware of their social value." It is good for the boy mentally, physically and economically, while to the teacher in the classroom it reveals shopwork, not as a subject apart from classroom interests, but as one closely responding to the needs of every-day classroom life. The scheme is one which connects the allied arts closely and logically and serves to braze them solidly to the school curriculum as a whole. In its development drawing, design and construction do not stand alone; they have a service to perform—they must be taught for use. The teaching in the shop breathes this idea. It is teaching done in the spirit of service.

FILIPINO BASKET MAKER.



NATIVE SMITHY.

INDUSTRIAL EDUCATION IN THE PHILIPPINES.

M. FRIEDMAN.

IT is now more than three decades since Benjamin Harvey Hill, the great American statesman and beloved citizen, in a burst of eloquence gave voice to the following: "No new civilization can be equal to the demands of the age which does not lay its foundations in the intelligence of the people, and in the multiplication and social elevation of educated industries," and, unconsciously this many-sided genius named the doctrine upon which the New South was builded. Every world power of today has attained its position of superiority mainly, nay primarily, because of the education of the people to better, honester, cleaner living by more efficient and productive labor. This most indispensable commodity in order to be efficient, highly productive, highly inventive, must be conserved, trained, placed in those channels where it is needed and can accomplish most.

May we not confidently declare that the persistent, economizing, hard-working American farmer, together with those vast armies of skilled artisans and mechanics, have brought the United States to the fore in the onward, uncontrollable march of the nations.

The Filipinos, even like unto all the rest of mankind, must be awake, actively, yea promptly and efficaciously, doing their share of the neces-

sary work of the world. There can be no evasion, no middle path, no stationary attitude. There is either progress or no progress, and when, instead of moving, they halt, inevitably there is retrogression and stagnation. It would be the extremest folly to ask the other peoples of the earth to "stand out of their sunshine" that they might work out their own manifest destiny. They need the experience, the enlightenment, the constant co-operation of that successful nation which is now the sovereign power.

This archipelago offers multitudinous advantages for securing a permanent prosperity to its native inhabitants. The rich soil, in conjunction with the tropical climate, will produce, because it has produced, numerous products for which there is a firm general demand. The forests, of which there are some forty million acres, abound in sound building timber and precious hardwoods. With the opening up of the projected railroads, there will be no difficulty in bringing this material to the market. These heretofore disregarded natural advantages are to be utilized. In order that this might be so, labor is to be placed on a more solid basis—it must be "elevated, educated and dignified." To this end, the government of the Philippine Islands, through its bureau of education, has established schools of science, agriculture and the trades.

Some industrial training is carried on in connection with the educational work conducted in Manila and the provincial towns and "barrios." In fact it occupies a distinct and definite place in the general scheme of instruction. The official course of study prescribes such work for every boy and girl from the first. Various kinds of "busy work" have been introduced for the younger children, taking the form of elementary sewing and embroidery for the girls, and whittling, cardboard construction and gardening for the boys. It is purposed, and this is being gradually carried into active practice, to weave a perfect system of organized industry in connection with the literary curriculum of each school, of whatever grade, in Manila and every province.

A course in arts and crafts is provided for all secondary schools. The subjects taught are wood-carving, carpentry, blacksmithing and mechanical drawing. Shops have been equipped and the work is progressing satisfactorily in the provinces of Cebu, Occidental Negros, Surigao, Bohol, Albay, Batangas, Masbate, Sorsogon, Camarines, Bulacan, Laguna, Pampanga and Cagayan.

As this is going to press an industrial school is being opened in Iloilo, one of the largest cities in the Islands, situated on the rich island of Panay, in the Visayan Group. The natives of this city have been en-

thusiastic and co-operative in their past attitude toward public schools and governmental institutions, and are very desirous of having the manual-training idea inaugurated in their city.

Equipment for about a dozen secondary schools has been ordered from the United States, and on the arrival of these supplies the manual

MACHINE SHOP, SCHOOL OF ARTS AND TRADES, MANILA

training departments will be immediately organized. In most of these provinces specially designed shop buildings are to be erected to accomodate this work. A fund of 350,000 pesos is available for this purpose, as a gift from the insular government. This money is to be apportioned according to the school attendance, the province to furnish a desirable site together with an additional sum of money.

The Philippine School of Arts and Trades, a large industrial school, located on the exposition grounds in Manila, aims to supply the government with well prepared and properly qualified instructors in the various trades, and to send out trained industrial leaders. With the fine equipment, and corps of expert instructors, its shops and drafting rooms offer exceptional opportunities to the young Filipino desirous of taking a leading part in the development of these "Isles of the Pacific."

The reader will have surmised before now, and truly, that industrial

education, because of the expense of equipment, and the high salaries it is necessary to offer trained instructors to lure them ten thousand miles from home, takes up a considerable portion of money. Our critics delight to parade this large expenditure before our eyes, with the information that no other colonizing power on earth spends as large a proportion of the colonies' income for their colonies' own education and enlightenment—and yet, of this feat we are strangely, justly proud. These fault-finders forget the guiding purpose of our policy of colonization—that of educating the colonist. They forget that ignorance and lassitude have ever been more costly to a government, the one engendering discontent, the other lawlessness.

An experiment, at once unique, and of great value because of its interesting results, is now being carried on in Capiz, the capital of Capiz Province. Hand work of some kind is being given to every boy and girl in the schools. It would be of interest to the person with the prejudiced attitude to see these people, old and young, rich and poor, enthusiastically working "elbow to elbow." While at work there is no distinction between the so-called "illustrados" or "upper classes" and the "tao," sometimes termed "gente bajo," or "lower class." The whole school takes on the appearance of a shop of "Roycrofters," its motto being "Head, Hand and Heart," the shibboleth of the East Aurora institution. The constant endeavor is to bring together the useful and the beautiful, and when John Ruskin says: "Teach the plow exercise as carefully as you do the sword exercise, and let the officers of troops of life be held as much gentlemen as the officers of troops of death," our educators here in the Philippines unconsciously say "Amen."

Except for weaving "pina" and "jusi" in some few localities, and making plain mats and baskets, these people have no native work comparable to the blanket weaving, clay and bead work of the American Indians resident in the United States. It is aimed to gradually develop these native industries, bringing to them down-to-date notions of color, form and construction.

An American instructress in one of the towns of Zambales province has organized a club, composed of native women, with a view to broadening their aspect of home life. Judging by results there is a great lack of knowledge concerning the rudiments of cooking, simple household duties and the rearing of children. By actual official count the appalling information is brought to us that out of every one hundred babies born in Manila sixty die before the end of the first year. In the provinces where conditions are more primitive and physicians can only be

had in the largest cities, the Manila statistics are evidently duplicated. The bureau has prepared a bulletin, which will form the basis of instruction in preparing the necessary food and properly caring for the child.

Many of the provincial schools offer training in house work and cooking. A trained teacher is in charge of this branch in Manila, and it is planned to make it a prominent feature of the school work.

Training in agriculture is offered in the course of study and has been provided for in many provincial schools. Much, it is hoped, will be accomplished in this extensive field, in giving the natives a saner view of approved methods of tilling the soil, raising stock and handling their products. This is a virgin soil for the cultivation of hemp, tobacco, sugar, rice, cacao, coffee, cocoanuts, and for numerous vegetables and fine fruits. In this connection it might be of interest to state that for the purpose of opening a school of agriculture the Bureau of Education has just taken over the Batangas Experimental and Agricultural Farm, with its buildings, stock and equipment.

We are daily impressing upon these people Carlyle's doctrine of simplicity and force that "a life of ease is not for any man, nor for any god," to the end that they might be led to engage in honest, useful, cheerful work when their school days are over.

I use this term "work" cautiously and withal liberally, meaning "a thing done because it ought to be done, and with a determined end." I am aware that an English philosopher, Herbert Spencer by name, remarked that we Americans had entirely too much of the "Gospel of Work" and that the time was propitious to "preach the Gospel of Relaxstion." No such advice is necessary to our guidance in bringing about the general uplift of the people of these Islands. Like all races not highly developed the Filipino lacts activity, perseverance, stick-to-itiveness. He lacks the power of application, and in too many cases his energy is spasmodic and short-lived. These short-comings will, to a greater or less degree, disappear. The constant influence for good of a progressive people, daily teaching by precept and example, by what they diffuse in the schoolroom and what they themselves accomplish in their everyday business and manufacturing careers, is already bearing fruit.

EDITORIAL.

The Douglas Industrial Report

The commission appointed by Governor Douglas of Massachusetts, in June 1905 to investigate the subject of Industrial Education, has published its report. This document, despite the shortness of the time taken for its compilation is one of exceeding interest and value to all schoolmen. Certain of its statements stand emphatically forth, particularly the wide-spread interest in the subject on the part of both social students and educators, and the personal need for such education felt by wage earners and manufacturers.

Proud of their schools the people of the Old Bay State are loth to criticise, yet, in the language of the report have a "vague feeling of dissatisfaction with results." There is an impression that the present school system fails to meet the needs of modern industrial and social conditions, though few of those interviewed seemed to have any definite ideas as to the proper way of solving the problem.

The commissioners, however, take the bull by the horns and make some very specific suggestions. Stated in briefest terms, these recommend that the work of the elementary schools see more practice in productive industry including the agricultural, mechanical and domestic arts, that there be elective industrial courses developed in high schools and evening schools, and that provision be made for instruction in part-time day classes for those between the ages of fourteen and eighteen, employed in the trades.

It is the latter workers who form a most serious subject for consideration. These are the children whose lives see precious years wasted—years from fourteen to seventeen, when the pupil is able to earn so little, and is given opportunity to learn so little that the time spent is of no educative value. They are years of no profit to child or state, but of incalculable loss to both.

To capture the children that have left—or been forced out of—school, and to retain those who would stay if they could receive industrial training, the commisson recommends the creation of an industrial education department apart from the public school system of the state.

This, like the state education department, would have a paid secretary, supervisors, and all the machinery of office. Its business would be to establish and maintain industrial schools with the cooperation of local municipalities, for the purpose of giving industrial instruction in part-time day classes to workers between the ages of fourteen and eighteen, and in evening classes to adult artisans.

Here is a definite proposition and one which will, doubtless, be subjected to serious debate. It aims to rouse no conflict of interests between the two school systems, especially providing that pupils to become eligible for the proposed industrial schools must have reached the age of fourteen. Whether such schools would tend to reduce the number of high school applicants cannot be premised. Their very existence though, could scarce but serve to stir the schoolman to a serious consideration of the industrial high school courses recommended in the report.

Many will be anxious to see the plan tried. With a special commission having a definite interest in the development of industrial education something would soon "be doing," and more would be sure to result than from any permissive law like the Massachusetts Act of 1872 which defeated its own end, by its provision that attendance upon industrial schools should not take the place of attendance upon the regular public schools. But there is a weak link in the present scheme dependent on another permissive "may." The commission-to-be, "may" establish part-time day industrial classes for those who are employed, but it is nowhere required that any employer see to it that his young employees be given opportunity to attend. Some of our Munich friends have ordered things a bit better. They have tucked a "must" in their law, so that in the latter city even chimney-sweeps go to a part-time industrial school which teaches the art of chimney sweeping. Very clever people the Germans, albeit some of their words are so long they sag at the hyphens. Their commercial vision though, has no kinks in it. It is straight as a bow-string. —*H*

An education which requires no constructive expression is not an education.

The hermit teacher who sees no school save his own loses the power of knowing what he loses.

ASSOCIATIONS

WESTERN DRAWING AND MANUAL TRAINING ASSOCIATION.

The Western Drawing and Manual Training Association held its thirteenth annual meeting in Chicago, May 1 to 4 inclusive. The Association was the guest of the University of Chicago and was given a hearty welcome to that busy and varied institution. Through its official representatives and their assistants, from the chairmen of the several local committees to the students who so faithfully guarded the exhibits, the University manifested a genuine interest in the work of the Association and sympathy with its aims. Indeed, several of the strongest addresses of the meeting were made by members of the University faculty, thus indicating that the University with its elementary school, high school, and School of Education is taking an aggressive attitude in the movement for a larger recognition of the manual arts as a factor in education.

The meetings of the Association were held in Mandel Hall, the beautiful Gothic chapel which is a part of that group of new buildings made conspicuous by the imposing square tower which is a duplicate of the Magdalen Tower at Oxford. The exhibit was held in the Manual Training Building and fully occupied all of the rooms except the shops in which pupils were at work. The building was so crowded that the exhibit of the University was placed in the gymnasium of the School of Education.

The opening session was held on Tuesday evening. This was devoted to music, addresses of welcome, and the address of the president, Miss Florence E. Ellis, of Grand Rapids, Mich. In a brief and appropriate manner Miss Ellis reviewed the present condition of the arts in the schools and urged the importance of a more extended course in the high schools and a greater degree of unity in the high school curriculm. "Academic studies have their values and their limitations as educative agencies; so also have the arts; together they form a complete whole, each reaching its highest significance when seen as a component part of a common unit of influence, having for its purpose the realization of efficiency and culture in the pupil."

With the Wednesday morning meeting began the feast of good things prepared by the program committee, of which Miss Wilhelmina Seegmiller, of Indianapolis, was chairman. The aim of this committee in preparing its program had been to give special emphasis to the applied arts, thus presenting subjects of real interest to both manual training and art teachers, while at the same time accenting the present tendency toward a more rational unity of drawing and manual training in school work. And so throughout the entire meeting one heard nothing about formal courses in woodworking and metalworking, or about drawing from casts and still-life, but he heard much about the methods of craftsmen in a great variety of materials, caught glimpses of the motives behind their work, and saw examples of their handiwork and the work of pupils under their instruction.

The thought of the committee was most fittingly introduced and emphasized by the first speaker on Wednesday morning, Professor Arthur W. Dow, of Teachers College, New York City. His subject was "Wood Block Printing. A study of the

Art as Practiced in India and Japan. Its Application to Art Teaching in the Schools." Mr. Dow's paper was illustrated with numerous examples of Oriental work and by work of students at Teachers College. (It is expected that Mr. Dow's entire paper with several illustrations will be printed in the October number of this Magazine.)

Mr. Dow was followed by Charles Q. Jones, of Indianapolis, who spoke on "Oriental Rugs and Rug Weaving." Having traveled extensively in the Orient in making the exceptionally choice collection of rugs he displayed and being a good story-teller, as well as an accomplished traveler and student of Oriental arts and customs, Mr. Jones' address was thoroughly enjoyed. In the evening Dwight H. Perkins, architect for the Chicago Board of Education, gave a lecture on "School Buildings," using for illustrations several buildings recently designed for the City of Chicago.

On Thursday morning Miss Emma M. Roberts, of Minneapolis, presented a paper on "Art-Craft Problems in the School." This was a heart-to-heart talk on the problems she had met in Minneapolis. Especially it dealt with the motive, spirit, ways and means and difficulties discovered in pottery, tooled leather and other art-crafts. It was full of suggestions. Miss Roberts said that the largest problem is to find things worth doing, and emphasized the importance of developing appreciation. Following Miss Roberts, Miss Elizabeth E. Langley, of the University of Chicago, presented the report of the committee on Handicrafts in the Public Schools. From the standpoints of possible permanent results and the effort spent in preparation, this report not only surpassed anything presented at the Chicago meeting, but anything that we have seen on the subject. The investigation of this committee reveals a condition that every director of handwork in the schools should give heed to, and we are glad that the Association decided to ask the committee to continue its investigation during the coming year. Certainly Miss Langley demonstrated her power to gather significant data and then to present them in interesting form. (An excerpt from the committee's findings is appended to this report.)

In the afternoon Dr. George A. Dorsey, Curator of Anthropology, at the Field Museum, gave an illustrated lecture on "The Development of Primitive Art as Illustrated by American Examples," which was followed by a visit to the Museum with Dr. Dorsey as guide. The social event of the meeting was on Thursday evening, when the Faculty of the School of Education received the members of the Association in the Art Room in Blaine Hall. Light refreshments were served in the spacious lunchroom adjoining and everything possible was done to make the evening a most enjoyable one.

On Friday morning, as on the two previous ones, the program began with an art-craft subject, and this time it was with Miss Madeline Yale Wynne, of Chicago, well known as an enthusiastic metal-worker. Her subject was "The Use of Metal." She was followed by Miss Ellen G. Starr of Hull House, who, in a most delightful way, told us of the mysteries of the book binder. It is impossible to fairly represent either of these addresses in a few sentences. A few words from Miss Starr, however, will present a point of view of interest to many of our readers. After speaking of handicraft book-binding as a reaction against "machine-made, cheap and shabby articles carried to the extremity of shabbiness" she said, "The reaction has perhaps itself shown some tendency to extremes. It is possible that, in some cases, things are done laboriously by hand which might be done equally well mechanically * * *

In cases where this is true the machine will doubtless be recalled even by the pure lover of thoroughness, durability and beauty."

In the absence of other speakers Deans Butler, Belfield and Jackman of the University were called upon for extemporaneous addresses. Dr. Belfield congratulated the Association on its development and achievements, recalled the establishment of the first public manual-training school about thirty years ago in the city of Baltimore, and called attention to the progress since that time. Dean Jackman spoke of the exhibits as a wonderful collection of examples of schoolwork and said that the future is full of hope. The next step in advance should be better organization; there should be closer relationship between the forms of work. Then we will have more unity. He would not have it organized in order to make a machine, but for greater efficiency. He would have design in closer touch with nature; "it must not be meaningless forms rearranged into meaningless products." Dean Butler expressed his warm feeling towards the Association and then in a few especially well chosen sentences justified work in the manual arts as a means of culture. He defined culture as a "sympathetic and intelligent taste for the finer things of life—art, music, courtesy, and religion." With this point of view our work should be done. Then taste and appreciation are not selfish but becomes identified with a sincere interest in the works of other people. It is this that makes the difference between a mere workman and a citizen. "It is only in terms of culture," said Dr. Butler, "that we can explain why people should live."

In the afternoon Supt. W. H. Elson of Cleveland gave an address on "The Place of the Arts in High School Courses" and in the evening Forrest Emerson Mann of Grand Rapids gave an illustrated lecture on "Design and its Application" using as illustrations several drawings already familiar to readers of this Magazine.

The business meeting resulted in the unanimous adoption of the revised constitution which was recommended by the executive committee, the selection of Cleveland, Ohio, as next year's meeting place, and the election of the following officers, the others holding over till next year: for vice-president, Lillian M. Cnshman of the Uuiversity of Chicago; for secretary, William T. Bawden of the Illinois State Normal University; for auditor, George M. Brace of Duluth, Minnesota. The revised constitution goes back to the annual election of all officers, but provides for continuity in the several important committees by appointment for service through a term of years, memberships in each committee terminating in rotation. It provides for an editorial board to take the place of the former publication committee and gives this board additional power and duties. The duties of the several committees and officers are more clearly defined than ever before, and it is the general belief that the new constitution will be found adequate to meet the needs of the enlargened organization. At the close of the meeting the Association gave a hearty vote of thanks to Lucy S. Silke of Chicago for the able work she has done in taking the lead in revising the constitution.

This report of the Chicago meeting ought not to close without a word concerning the exhibit. In the first place it should be said with emphasis that the exhibit was a good one, and some parts were exceptionally good. If other parts were not hung well this fact was certainly not due to lack of facilities at the University or to lack of skill or effort on the part of Mr. Williams of the University High School, the chairman of the Exhibit commiitee. On the other hand Mr. Williams deserves the thanks of the Association for his uniform courtesy and consideration under the most

trying circumstances. The fact is that many of the exhibitors paid no attention to the regulations of the exhibit committee, failing to notify the committee that they would exhibit, sending their exhibits long after the time limit, and omitting other important details. Certainly no exhibit committee in the future ought to be obliged to meet such conditions.

There is another possible line of reform in the exhibits. We heard several remark that they didn't see why so many supervisors thought it necessary to exhibit every kind of work from each grade—to present their whole scheme each year. The result of this is rods—almost miles of mounts which no one person can examine thoroughly in the limited time at his disposal. Is it not possible to reduce the number of mounts, concentrating on fewer lines of work or grades, thus making each exhibit more distinctive while occupying less space. A few exhibitors did this and the larger number of visitors studying their displays should be a suggestion to other exhibitors.

One teacher of manual training said, "This is the best exhibit we have had. It shows that we are really getting together," (referring to the drawing and manual training teachers). Certainly this observer pointed out a marked characteristic of the display. While the manual training was not as well represented as it ought to to have been, especially in a center like Chicago, what was shown was encouraging. Next year, however, we hope to see a much larger display covering a broader field of manual training work. The art phase surely is not the only one worth displaying.

For an opinion on the drawing work exhibited we consulted Professor Frederick of the University of Illinois, who has studied these exhibits from year to year. He said that he was much pleased with the present one. It gave evidence of a "sureness of technique" that he had not found so general in any previous exhibit. There was greater command of the language of expression in pencil, in water color—in fact throughout the entire exhibit. —*B.*

EXCERPT FROM REPORT OF COMMITTEE ON HANDICRAFTS IN THE PUBLIC SCHOOLS.

The plan of the committee appointed to look into the subject of handicrafts in the schools has been to gather, with as much completeness as possible, statistics concerning the actual status of the handicrafts now given in the schools. We thought we could learn from these statistics (a) what is being done; (b) the desires and ambitions of the schools; (c) reasons why these ambitions are not carried out; (d) prevailing opinions on the value of the handicrafts and on their actual place in the school.

Of the 800 papers sent out, only 200 brought responses. This is a smaller number than the committee had hoped for. But while the number of reports was comparatively small, and while these 200 reports most certainly do not cover all the work in handicrafts that is being done in the country, an analysis of the returns nevertheless shows that the reports are both typical and significant.

The returns have an added value and interest from the fact of their wide distribution and because of the important centers represented. The reports received represent all the states except North Dakota, Arizona, Oklahoma, South Carolina, Mississippi and Louisiana. Of these, Massachusetts is represented by 14 papers, New York by 9, New Jersey by 9, Pennsylvania by 15, Wisconsin by 11, Illinois by 15, California by 12.

The returns derive a further value and an exceptional interest from the fact that of the 200 who did answer nearly all wrote with fullness and definiteness, while

many sent additional letters which were not only gracious, cordial, even enthusiastic in tone, but contained much illuminating information.

FREEHAND DRAWING

A study of the tables on separate handicrafts shows that freehand drawing is distinctly in the lead. This is doubtless due to its universal applicability and to the cheapness of the necessary equipment. Of the 150 schools, 20 report freehand drawing through all the grades, and all years of the high school, 14 carry it through all the grades and two years in the high school. Sixty report it through all the grades. In time the reports vary from forty to eighty hours a year, few schools giving hours outside of these limits. It is given almost invariably to both boys and girls. In half the schools it is given by a special teacher, in half by the grade teacher or the grade teacher with a supervisor. The cost is generally reported as too slight to be estimated.

With so much stress on freehand drawing, so much time, such continuous effort, so much in the way of expert instruction, the results in the schools should be great

WOODWORKING.

Woodworking is given in spots in 80 out of 150 public schools. No schools report a continuous course in woodworking from the first grade through the high school. One school, however, reports woodworking from the fourth grade through the high school, and one from the fifth grade through the high school. In both of these cases the work is given to boys only, with a special teacher. One elementary school carries wood through the eight grades, and supports a special teacher who gives it to both girls and boys. Six schools report wood in the high school only, but out of the six, only one offers it through the four years. Eight of the schools giving wood in the elementary schools give it to both girls and boys, and of the high schools one gives it to girls. One city reports woodworking only in the first two years of the high school to both girls and boys. No schools offer it to girls only, but 58 give it to boys only, and 16 to both. In the elementary school the stress is on the fifth, sixth, seventh and eighth grades from 30 to 60 hours per year, the shortest time being 20 hours, and the longest 120. In the high school the stress is on the first, second and third years with the accent on the first. The time devoted to woodworking in the high school varies. The average number of hours is from 50 to 60, but 16 schools give it from 100 to 200 hours, and eleven give it over 200 hours.

Eighty-one schools have special teachers of woodwork. In 5 the work is in charge of the grade teacher, and 6 schools have both grade and special teachers of woodworking.

MECHANICAL DRAWING.

Mechanical drawing seems to be a part of every school curriculum at one time or another. One school, however, breaks the record in reporting mechanical drawing from the first grade through the two years of high school, for both girls and boys. As a rule, both girls and boys have the same privileges in mechanical drawing while in the elementary school, and we find that in the high school, too, there is less segregation and more freedom in mechanical drawing than would be expected by any one reading the reports from the other handicrafts in this list. Now, since according to the reports girls are not generally admitted to any of the other crafts except sewing and cooking, and since sewing and cooking are not largely re-inforced by this form of

drawing, we may conclude that it is most frequently taught in a purely isolated manner, as mechanical drawing per se.

Out of 150 schools, 76 report mechanical drawing. Of these, 28 give it somewhere in the grades, 26 somewhere in the high schools, and 22 in both grade and high school. Forty-six of these schools give mechanical drawing to both girls and boys, and 24 to boys alone. There is no record where girls only have this work. The emphasis in the elementary school is on the grades from the sixth to the eighth, and in the high school is on the first and second years. The cost in the high school varies from $ .05 to $1.75 with an average of $ .40. No high school gives less than 10 hours per year, and one or two give 175 hours. Regarding time in the elementary school, 4 hours per year is the least time, and 320 hours is the most time given to Mechanical Drawing.

SEWING.

Altogether, 80 schools report sewing, 48 in the grades, 26 in both grades and high schools and 6 in the high school alone. A detailed analysis of this work would be interesting, for it is full of variations and exceptions. One can hardly make a statement regarding sewing which should not be modified in some way, except that there is no record of any school where sewing is given to boys only. In all of the 48 elementary schools, boys as well as girls below the sixth grade wield the needle. In 32 schools, sewing is given to girls alone. The amount of time given to this subject varies. No school, however, gives less than 10 hours a year, and none over 90 hours. Thirty-seven schools report between 40 and 50 hours. The cost ranges from $ .06 to $1.00 per pupil per year. Sewing in the grades is found chiefly between the fifth and eighth, and in the high school in the first and second years. Four high schools, however, offer sewing as an elective, and 3 high schools give sewing only to negroes.

PAPER.

Seventy-seven schools say "yes" to paper work, and in every school except one, it begins in the first grade. Three of the schools have a progressive course through the eighth grade, but the emphasis is on the grades from the first to the fourth. No school gives less than 5 hours or more than 80 in a year, and the pendulum swings between 5 and 40 hours. Boys and girls have equal rights where paper work is concerned, except in one school where it is given only in the fifth grade and only to boys, In that school they have a special teacher, and the cost per pupil is $1.50.

Paper is a flexible course. It varies in many particulars. Here the price is $.05, there the price is $2.50. In 9 schools they need a special teacher, in 7 schools the services of both special and grade teacher are required, but more often the latter plans the work. There are 23 schools that manage in this way. It is superfluous to mention that paper work is not given in the high schools.

(Continued in the October number.)

SCHOOL CRAFTS CLUB

A meeting of the School Crafts Club was held March 9, 1906. The program was given to the discussion of the use of metal in the elementary school, Wm. C. Stimpson in the chair.

METAL IN THE ELEMENTARY SCHOOLS

Wm. A. Robbins had tried the experiment of introducing Venetian iron work in

the elementary schools of Passaic, N. J. The novelty of the work proved interesting to the boys, and the equipment was simple and inexpensive. In several cases boys had bought tools to use at home, and sold the results of their work. Blue prints were used at first, but later the pupils were encouraged to work out original designs. Mr. Robbins claimed the following points in favor of this line of work: 1. It admits of much originality in designing. 2. Introduces a new material and opens up new possibilities in its use. 3. Can be given to small children. 4. Aids in the true understanding of lines and the value of curves.

The use of sheet iron was discussed by Egbert E. MacNary, who believed it a mistake to limit children to one material in their manual training. The work should be typical of the common industries of the country. Sheet iron has an equal claim with wood on the basis of its being typical and easy to handle; requiring small equipment; being capable of as much thought development as wood, and not expensive. Methods of working sheet iron were described, and some interesting specimens of work from the Horace Mann School shown, the principal operations being grouped as follows: 1. Structural work, involving the cutting, bending, punching and riveting of braces, beams, columns, etc., and bridge and roof trusses. 2. Working models, such as water wheels, fans, railroad cars, signals, etc. 3. Representations of machines and devices. 4. Miscellaneous projects, such as lanterns, stereopticons, camera parts, furnaces. Mr. MacNary concluded with list of tools, etc., required and the estimated cost.

Leonard W. Wahlstrom, whose exhibit from the Ethical Culture School showed the adaptation of sheet iron and other metals to various uses, did not regard mere variety as an end in itself. When the materials and processes illustrate typical industries and occupations in the world, they are serving a useful purpose in the school. It was suggested that sheet iron might be used to illustrate rolling mill processes by divising some apparatus which would roll the soft iron into various shapes.

The advantages of using sheet copper as a workshop material were set forth by George F. Stahl. Wood, Mr. Stahl believed, had been too exclusively used as a medium of expression. What should be a manual-arts room became to the boy only a carpenter shop. The introduction of a new material in the last school grade would give him a new medium of expression and open a new field of observation. Work in thin copper or brass has been shown to be well within the powers of the pupil besides having an educational value. This metal may be used in connection with wood for corner plates, strap hinges, hasps, escutcheons, etc. Alone, it may be used in simple repoussé and riveting, making trays, sconces, ink stands, picture frames, etc. In letter openers, buckles, paper knives, etc., sawing and filing might be introduced. Shaping and raising could be undertaken in small classes. The equipment to carry on work of this kind could be purchased for about three dollars per pupil.

John N. Lobdell spoke of his experience with a class of evening school boys who came for the work in preference to playing on the street. The work had proved interesting to them and very good results had been obtained, some examples of which were shown. The equipment consisted of a few pairs of tin snips, punches, chisels, files, riveting hammers, and large nails, which latter the boys filed into chasing tools. Brass and copper offer a good opportunity for originality, both in outline and decoration.

Mr. Stockwerth, of St. George's Trade School, also spoke briefly of the work and exhibited some interesting models.

The last meeting of the Club for the fiscal year was held on Friday, May 11th. The report of a committee appointed to consider a plan of work for the coming year, recommended that a program for the year be laid out in advance, and that, with a view to securing the most effectual discussion, topics should be prepared and sent before the meeting to all concerned. The significance of the arts at different school ages and the work best fitted for elementary and high school grades respectively were suggested as topics for discussion.

Officers for the ensuing year were then elected as follows: President, Arthur L. Williston; Vice-President, Cheshire L. Boone; Secretary, Wm. A. Worth; Treasurer, Walter M. Mohr.

The program of the evening was then taken up, Hugo Froelich, chairman, the topic of discussion being

METHODS OF TEACHING DESIGN IN CONNECTION WITH MANUAL TRAINING.

The subject was introduced by James Hall, who said that there is too little good teaching of constructive design in the schools. There is, however, no lack of good literature on this subject. If teachers would read what John Ruskin, Henry Mayeux and Henry T. Bailey have written on structural design they would find all that need be said upon the fundamental principles. The teacher should develop ability in the pupils to appreciate the best. Through inability to understand the meaning of line and form the beauty of architecture, furniture, jewelry, etc. is lost. In a classic column every line speaks. Everything bears witness to the perfect adaptation of the column to its purpose. Pupils should be taught to respect tradition. Good forms are the result of slow evolution. When a child understands *why* a good form is good, then he may make some reasonable variations. The teacher should study and teach classic forms, the fitness of form to use, adaptation to material, grace and beauty of contour, and decoration as an emphasis of construction. In conclusion, Mr. Hall showed some examples of pupils' work in design. These included the paneling of doors, bolt heads variously modified, escutcheons, book rack ends, etc. He recommended for study in the upper grades, problems in designing cabinet fronts and doors, mouldings, columns, balustrades, door hinges, etc.

Frank H. Pierce urged co-operation between art teacher and workshop teacher. Each should assist the other in doing effective work. Mechanical drawing should be taught as carefully and correctly as freehand, so that working drawings may come to the shop with clean, fine lines correctly projected and figured. For decorative designs both form and color should be carefully done on paper. The art teacher should know something of construction, and should take care that the pupil knows what his drawings are for, and the relation of parts to each other. Wax finish for wood was recommended for the school workshop, especially for carved work.

Wm. A. Worth presented an outline of the work as conducted in the New York City schools. Here, originality in making designs is encouraged, but within certain restrictions. In the earlier grades the pupil is taught to adapt a design, under certain definite principles, to a space of fixed size and shape. In the next grade he may modify the outline of the thing made, and make his design to fit the space thus modified. In the later grades he not only modifies the outline, but also changes the proportion of the space to be decorated. The same gradation of work is pursued in the matter of construction, different joints being introduced from term to term in order

of difficulty. The drawing teacher supplies all drawing for the workshop—first, a freehand sketch of the object; second, an outline sketch modified by the pupil; third, a mechanical drawing of the whole; fourth, a line sketch of the applied design, and lastly, the same design in color.

METALWORKING IN GRAMMAR GRADES.

A line of Venetian iron work for the 7th grade, and another of sheet metal work for the 8th were described by Eli Pickwick, Jr. The first problem in sheet metal taken up in a new district in Newark, was a lamp shade. The drawings consisted of a mechanical drawing in section, a working drawing, and the fitting of the design to the space. The design was given to the pupils for the first problem, because, before he can make a design for a given material, he should have had some experience in working the material. This design was transferred to the metal and worked out with the punch. In the next problem, a tray, the boys were allowed to choose a design. In the third problem the design would be their own. No. 30 gauge metal was used for the lamp shade and 22 for all other work.

Some suggestions on design in relation to sheet metal work were offered by Edward Thatcher, of Teachers College. Many tendencies of the times, Mr. Thatcher believes, including the art education which the child receives in school, are creating a demand for better things about the home, and not least among such things are articles of metal, such as jewelry, furniture fittings, bowls, lamps and the like. Here are opportunities for the craftsman designer. He may begin by designing from his tools, using a center punch and chisel for a simple dot and line pattern. Then he may take up stencil designing in connection with metal sawing, then combine the stamping and sawing. From this he can go on to raising, chasing and enameling. But the young designer should remember that an experienced mechanic may know many things about designing metal that he does not. In describing bowls which were made by the spinning process and finished with hammer marks to make them look hand-made, Mr. Thatcher concluded, "right there is the death of good work and the wealth of Sixth Avenue."

The chairman called attention to the unanimity with which the speakers had laid equal emphasis upon good construction and good design. Some discussion arose as to the propriety of decorating a surface, such as the bottom of a tray, which would be covered while the article was in use. Harold Brown said that much ornament had been produced apart from any theory, citing Egyptian and Grecian dishes, etc., which had been ornamented inside and outside, evidently regardless of use. Mr. Brown expressed a sentiment which seemed to be shared by many present, when he said, "if he wants to ornament it, why shouldn't he?"

The evening's discussion was followed by a luncheon and general conversation, thus bringing the meeting to a close and ending a season which had proved in every way successful. —W. F. VROOM.

CURRENT ITEMS.

CLINTON S. VANDEUSEN

IN view of the appalling calamity which has visited San Francisco, it is impossible for the National Educational Association to hold its meeting this year in that city. After fully considering all the letters and telegrams which have been received from all parts of the United States, and after carefully weighing what is due the people of San Francisco, the executive committee have decided to postpone the annual convention for one year, to a place yet to be determined. They join in the hope that the association may meet in San Francisco as soon as feasible.

THE joint meeting of the Eastern Art Teachers' Association and the Eastern Manual Training Association, held in New York on May 31st, failed to effect the union of the two bodies under a constitution drawn up by special committees appointed by the respective Associations last year. The question of amalgamation is, however, still in the hands of the committees, and will be discussed at future conventions. George Bartlett of the Massachusetts Normal Art School, was elected president of the Art Teachers' Association, and Mr. Noyes of Teachers' College, was re-elected president of the Manual Training Association.

THE managers of the Jamestown Exposition to be held at Norfolk, Va., in 1907, are planning to give a prominent place to arts and crafts. They are to have a village of several buildings for housing the artistic handiworkers who will be at work making articles in wood, metal, textiles, etc.

THE spring meeting of the California Manual Training and Drawing Teachers' Association has been postponed on account of the earthquake.

THE San Francisco fire following the earthquake destroyed many school buildings, among them the Polytechnic High School, and the Mark Hopkins Institute of Art. Nearly all the art treasures in the Institute collection were destroyed. It is gratifying to know that Millet's "Man with the Hoe," belonging to the Flood collection, was saved.

WALTER A. TENNEY, of Oakland, Cal., president of the California Manual Training and Drawing Teachers' Association, recently delivered lectures on manual training in Sacramento and Berkeley. Great interest has been aroused, and this work will shortly be installed in these two cities.

THE city council of Berkeley has voted to call for a $140,000 bond issue for the purpose of building and equipping a Polytechnic High School.

C. A. KUNOU, supervisor of manual training in Los Angeles, has recently sent out a circular letter to many of the leading educational workers in California pointing out the necessity of some sort of standards in manual-training work. He asks co-operation in an effort to "establish a rational uniformity of principle and purpose in manual training throughout the state."

THE North Division High School, of Milwaukee, was organized in September, 1903, in temporary quarters. The school, while awaiting the completion of their new building, has a room in the basement of one of the grade-school buildings fitted up for benchwork in wood and mechanical drawing. At the beginning of the year there were enrolled in the manual-training department 110, which, taking into consideration the fact that there is at present an equipment for first year, first semester work only, gives one some idea of the size this department will assume after being fully equipped. An appropriation of $180,000 has been made for the erection of a building to accommodate this school. It is now in process of construction and when completed, will, without question, be the finest high school building in the city, with a fully equipped manual-training department. The new building is located on Center Street, occupying the block from Eleventh to Twelfth Streets, and will be a three-story building of red brick with Bedford stone trimmings. The general plan of the building is in the form of the letter E being 210 feet on Center Street, the wings on Eleventh and Twelfth Streets being 146 feet in length. The center portion of the E will be devoted to the gymnasium two stories in height and above it the assembly hall. The manualt-raining department will occupy the entire basement of the Twelfth Street wing, and in addition, a wash room in the basement and three rooms on the first floor. On the first floor is the mechanical drawing room, 54 feet by 23 feet. This room has a northern exposure and will be equipped with twenty-four drawing stands, together with all the appliances necessary for making blue prints. On the same floor, directly connected with the mechanical drawing room, will be located the bench room, 41 feet by 40 feet, in which will be installed twenty-four benches together with a full complement of woodworking tools. In the basement will be located a wash room 40 feet by 23 feet, for the exclusive use of students taking the manual-training course, which, besides being completely equipped for wash purposes, is to have 300 lockers of sufficient size to accommodate everything the students may wish to keep under lock and key. Communicating with this room is a room 41 feet by 40 feet in which will be installed twenty wood-turning lathes and all the other machines for working in wood, including among others a saw bench, band saw, scroll saw, and single surfacer. Across the corridor from this room is a room 81 feet by 32 feet, which will be divided into two rooms, one of which will be used for the work in forging and will be equipped with twelve down-draft forges together with all the necessary accessories for the complete equipment of such a department. The other room will be used as a machine shop and will be fitted up for that purpose with engine lathes, a planer, drill press, milling machine and other machines to be found in an up-to-date machine shop.

PROFESSOR J. H. GILL, in charge of the mechanical engineering department, Milliken University, has been appointed successor to Professor C. F. Perry, in charge of mechanical department shops, University of Illinois, who has been elected director of the new Milwaukee School of Trades.

DR. A. W. HARRIS, formerly president of Jacob Tomb Institute, Port Deposit, Md., has been unanimously elected president of Northwestern University. One of Dr. Harris' first duties will be the establishing of a school of technology, Mr. and Mrs. Edward Swift having made provision for such a school by a gift of $150,000.

LARS THORSON has recently taken charge of the manual-training work at Flint,

Mich., as the successor to Clarence E. Howell, who is now working in one of the manual-training centers in Cincinnati.

THE Isadore Newman Manual Training School, New Orleans, recently closed its second year of work, and the problem of what to do with its growing attendance is to be met by the erection of an annex which was made possible by a gift of $25,000 from its founder. This annex is to be completed by November, 1906, and will be used by the elementary school; the main building being reserved for special departments and high school classes. Much interest was shown by the public at an exhibit and open day held May 4.

THE buildings of the Manual Training School shown on the opposite page embody the latest ideas for a manual-training school. The basement contains, in addition to the apparatus for heating and ventilating the building, a kitchen, a lunch room, and a large locker room. Above the kitchen are the science laboratories, all completely equipped. Above the locker room are the two drawing rooms and the gymnasium. Class and recitation rooms, with library, office and auditorium occupy the center of the main building. The shops, five in number, are in the rear and are models of their kind. They are all on the ground floor, and in addition to ordinary windows, are lighted from overhead. All the machinery is driven by electricity and in every shop the appliances are under the control of the instructor in charge of the shop. The equipment is almost entirely new and of a superior character. The shop is connected with the main building by an enclosed corridor. All departments of the school are efficiently ventilated. Thermostats are used everywhere and the air currents are driven by fans. The capacity of the building is about 350 boys, all of whom take the manual-training features.

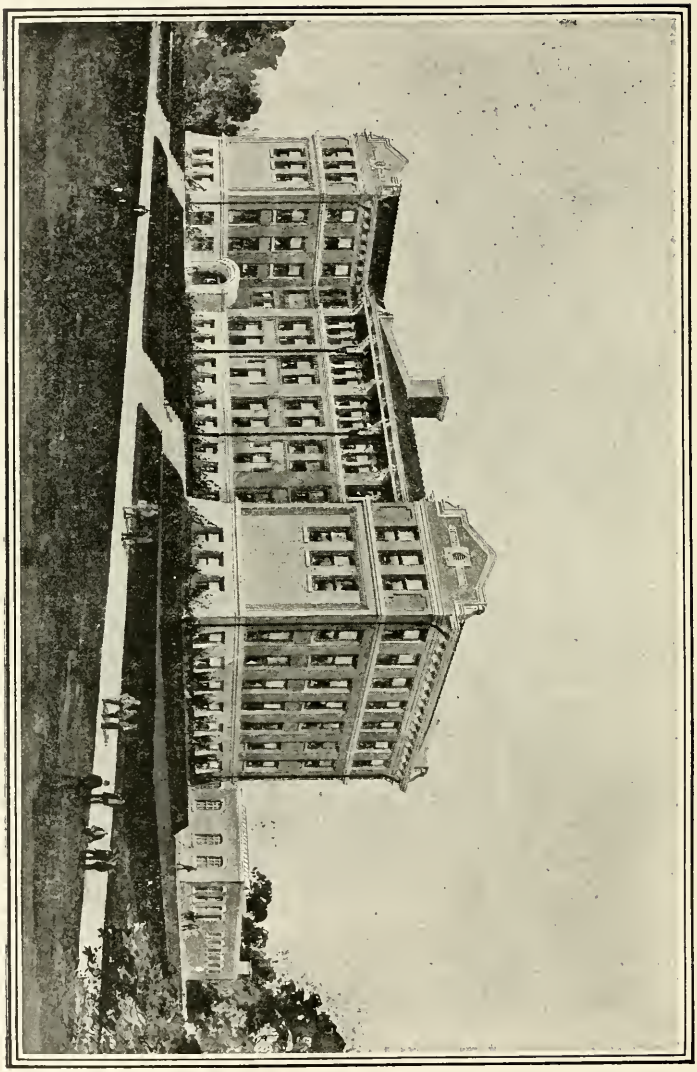
THE board of education of Cincinnati recently purchased a lot to be used for the erection of a new high school. It proposes to build an up-to-date school that the city will be proud of in the years to come. Manual training, domestic science and a commercial course will be prominent features. It will probably be two years before the building is ready for occupancy; and it is Supt. Dyer's idea to promote as far as possible special teachers from the grades to the high school positions so that there may be a unity between the lower and upper work.

MADISON and Wyoming, two suburbs of Cincinnati, will introduce manual training and domestic science this fall. The organization of the work is being carried on under the direction of Mr. Ball and Miss Ulrich, of Cincinnati.

HUGH LAW, formerly of Menominee, Mich., has recently taken charge of manual training at Covington, Ky.

MANUAL training and domestic science is being extended in the grade schools of Cincinnati. Last October the work started with four centers, and now there are eleven centers for boys and ten for girls. Five more will be opened this fall.

THE formal opening of the manual arts department of the Allegheny High School took place on the evening of May 10, in the chapel of the high school. Appropriate addresses were made by the principal of the high school, the superintendent of the Allegheny schools, the different members of the industrial and high school committees, representing the board of controllers and the secretary of the board. C. B. Connelley, from the Carnegie Technical School, gave an illustrated



talk, delineating the history of manual training in Allegheny County. J. M. Conroy, who is called the "Dean of Manual Training," in Allegheny County, also made a very fitting address, giving details of the first industrial school in Allegheny. A number of prominent educators from Pittsburg and vicinity were present and took part in the exercises. At the close of the formal meeting a social hour was indulged in, during which time refreshments were served by the girls of the domestic science department. Miss Irene E. McDermott is the instructor of the girls in the department and James R. Glenn has charge of the boys. The first exhibit of the department was held in the afternoon and evening of June 14.

JOSEPH SPEER, formerly connected with the grammar schools of Allegheny, is now supervisor of manual training for all the schools of that city.

MR. WHITBECK, of Pratt Institute, takes the place in Washington, D. C., made vacant by the resignation of Harry Michie, who is to study in South Kensington, England.

AT a recent meeting of the county school commissioners of Georgia, it was decided that the state commissioners should appoint a commission to devise means for stimulating public sentiment along lines of manual work. The following were appointed from the active workers in the field of industrial education, as such a commission; Fred J. Orr, from the State Normal School; M. L. Duggan, of Hancock County, and C. B. Gibson, of Columbus. It is the purpose of the commission to organize active operations for the promotion of industrial education in the state.

THE school authorities of Boston considered the recent meeting of the Eastern Manual Training Association and the Eastern Art Teachers' Association at New York of such vital importance that they closed the various manual-training centers in order that the instructors might attend the meeting.

ARTHUR D. DEAN has resigned his position in the technical high school of Springfield, Mass., to accept the position of supervisor of evening schools for industrial workers, which are being organized under the auspices of the Y. M. C. A. of Massachusetts and Rhode Island. Mr. Dean has had experience in this line of work in the Emery School of Trades and it is his purpose to make a careful study of the industrial conditions in the various parts of his territory and then try to direct the schools in the way that seems best suited to each locality.

THE New England Association of Teachers of Metal Work has, for the past year, been considering the advisability of enlisting the co-operation of men in a larger field. At a meeting held in Waltham, Mass., on Apr. 7, it reorganized under the name of the Society of Mechanical Instructors. All men engaged in, or directly interested in, teaching mechanical subjects are eligible. The dues are one dollar per annum. The secretary, Wm. C. Houghton, 49 Pleasant St., Waltham, Mass., would be pleased to hear from those interested in building up such an organization.

LOUIS ROUILLION has been chosen director of the proposed Franklin Union of Boston; this is to be conducted along the same industrial lines as the Cooper Union of New York and was made possible through the funds left by Benjamin Franklin, recently increased by a donation from Andrew Carnegie.

THE woodworking equipment of the high school at Bangor, Me., has recently been increased by the addition of some more turning lathes. The entire lathe equip-

ment is driven by a shaft on the floor, which allows of better light and prevents the jar being transmitted to the rooms above.

PHILADELPHIA

THE work on the new Southern Manual Training High School has been progressing and the building is expected to be in readiness to receive pupils by September 1907. The plans contemplate one of the most complete and well appointed buildings of its kind in the country. It stands in a portion of the city heretofore unprovided with high school facilities, which, already a large and populous district, is rapidly growing.

One of the results of the reorganization of the board of education, in accordance with the recent State law, is the appointment of a committee in charge of all the high schools for boys, now three in number, instead of a separate committee for each institution as was formerly the case. The change is expected to be of much advantage in many ways and to fix more securely the place of manual training as a part of the high-school curriculum.

Philadelphia, with its accustomed conservatism, has long held to the plan of one large centrally-located high school, compelling large numbers of elegible pupils to forego a high school education or to travel long distances in order to obtain it. Recently, however, the city authorities have taken steps to provide a new high school building for each of five districts comprising the whole area of the city. It is planned to make these new institutions co-educational, and we are assured that manual training will occupy a prominent part in the course of study. The plan further contemplates the establishment of the first of these district high schools in West Philadelphia in the very near future, and the last is to be opened in not more than five or six years.

The city is also to open in a few months the first mechanical trade school under public control in this vicinity. As might have been expected the proposition did not meet with a unanimous approval in the board of education, and the old question of how far public school funds can properly be appropriated for specialized instruction was vigorously debated. The board contemplates the establishment of a number of these schools as fast as conditions warrant them.

—H. W. HETZEL.

NEW YORK CITY

Collected by A. W. Garrett

A topical exhibit of work in drawing, construction and design from the elementary schools of Manhattan and the Bronx was arranged in the assembly hall of the board of education and was thrown open to the members of the Eastern Art and Manual Training Teachers Association from May 31 to June 4. An interesting feature of the exhibit was the large number of pieces of science apparatus that had been made in the shop as group work. In connection with this exhibit a joint meeting of science and shop teachers was organized. Two meetings were held at each of which two science teachers and two shop teachers presented short papers followed by discussion. "How to Teach Mechanical Powers," "Home Made Apparatus," "The Class-room Laboratory," and "Science in the Child's Experience," were the four topics discussed by the science teachers: "The Relation of the Science and Shop Teacher," "Excellence in Construction of Shop-Made Science Apparatus."

"Organization of Classes for Group Work," and "The Field for Constructive Work in Science," were the four topics discussed by the shop teachers.

UNDER the auspices of the Graduates Club, of New York City, a meeting was held on April 27th to consider the subject of industrial and technical education. The meeting was addressed by six speakers prominent in industrial and educational fields. This meeting forms a part of an important movement to bring the system of education in this city into closer relations with the industrial needs of the community.

FOR some years past great difficulty has been experienced in obtaining a sufficient number of teachers of shopwork to take charge of the many new shops that have been opened in the elementary schools. An examination of candidates for shopwork was concluded on May 23. Another was held on June 4 and 5. A third test will be held in the fall. Information regarding the salary paid and the necessary qualifications can be obtained from the director of manual training, Dr. James P. Haney, 500 Park avenue.

THE annual exhibition of work of all departments of Pratt Institute was held on May 31 to June 2 inclusive. This exhibition was considered of special importance, as several of the joint meetings of the Eastern Art Teachers' Association and the Eastern Manual Training Association were held at the Institute at that time.

TEACHERS College and the Horace Mann School held their annual exhibition during the week of May 28 to June 2. In the Horace Mann School still further progress has been made towards the inclusion of industrial studies in the manual-training work. In the sixth grade a typical mill of one story was constructed about 5 ft. long. A line of shafting was run, fitted with metal boxes and lined up. A number of small model wood and metal working machines were driven by belts and pulleys from this shaft and the whole mill was run by a water wheel built by the class.

In the seventh grade there was shown a model of a freight depot made with iron columns and concrete walls and fitted with truss roof and corrugated metal roofing. Metal tracks, switches, signals and freight cars completed this study of building construction and transportation.

A feature of the college manual-training exhibit was a balloon framed one-room house, 44 ft. x 38 ft. sheathed, clapboard and shingled. The house was equipped with a fireplace and chimney made of burned clay bricks and an electric light installation. The house itself was built by the class studying the evolution of typical industries and was furnished with chairs, tables, book cases, rugs, cushions, table covers and curtains by the class in primary grade manual training. Over the lintel was carved, "Wendy's House."

The other exhibits comprised wood-working, running into furniture in the advanced class, wood carving, beaten copper, furniture fittings, enamel work and simple jewelry. The work in applied and constructed designs given by the department was also shown.

The interest in the exhibition this year was increased by the fact that the joint meeting of the Eastern Art Teachers' Association and the Eastern Manual Training Association was held at Teachers College and Pratt Institute during the exhibition week.

THE annual exhibit of the work and equipment of the Ethical Culture School opened on the evening of April 5 and closed on the afternoon of April 7. During

this time there were about 3,300 visitors. Exhibits were shown of the work of each department in its own quarters and of each of the grades in its own class room. A program of gymnastics and music was also given demonstrating the work of those departments.

A. L. WILLISTON, of Pratt Institute, sailed for Europe April 5, to be gone until the latter part of August. While there he will visit technical and trade schools in Germany and France and will travel in both Italy and Switzerland.

EXCEPTIONAL opportunities have been offered the normal art classes this year at Pratt Institute as a result of the equipment of a large manual-training room. Following Mr. Pierce's well-grounded elementary course in knifework and joinery, a larger number of project pieces than usual have been introduced in the first-year work; and with the second-year students Mr. Pierce has developed the individual project idea to an extent never before attempted in this course. In all the work, wood-carving, weaving, leather work, or metal work have been combined wherever they would serve as a fitting constructive or decorative feature. Beginning in January the second year class has spent two half days each week in metal work, and a practice piece and one original design in bent iron was worked out; this was followed by the constrnction, by each member of the class, of some original design in sheet metal. These projects combined iron and copper or brass.

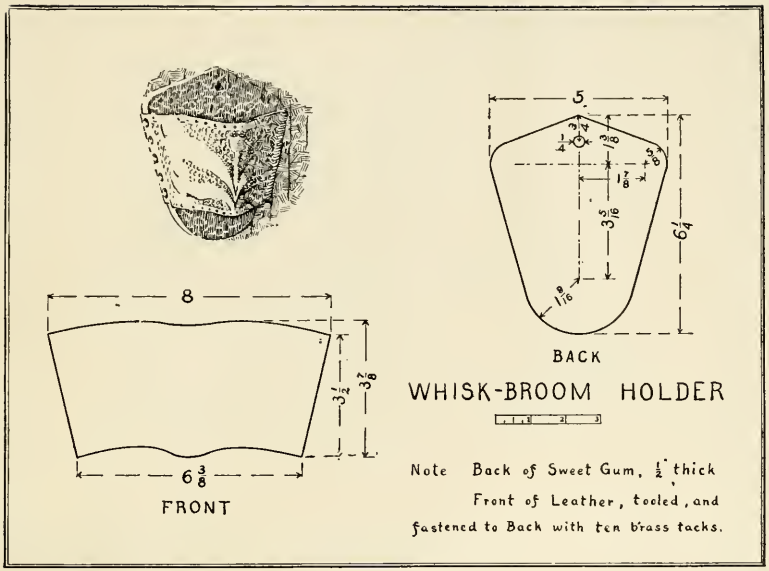
KANSAS.

ONE feature of the Kansas City work is the annual down-town display of mechanical drawing, wood working and wood turning exercises. A prominent window is secured from some merchant who gives its use for a week. There is no trouble in securing one, for merchants are often anxious to dress a window with some novelty of general public interest to ally themselves more closely to the people they serve. Here a parent, patron, or student may spend a moment or longer in seeing what they seldom, if ever, would go to the school to see. The articles are, of course, inclosed in glass, are safe and cannot be handled, and are on exhibition during the busy hours of the day and the leisure of the evening, and elicit general surprise that the public schools are so practical.

CLARENCE J. SMITH, for the past three years director of manual training in Wichita, has been elected to a similar position at Kansas City.

HUTCHINSON put in high school work last year with Mr. Eby, from the Manual Training Auxiliary of the State Normal School of Pittsburg, Kansas, in charge. The boys have been getting five double periods per week in joinery.

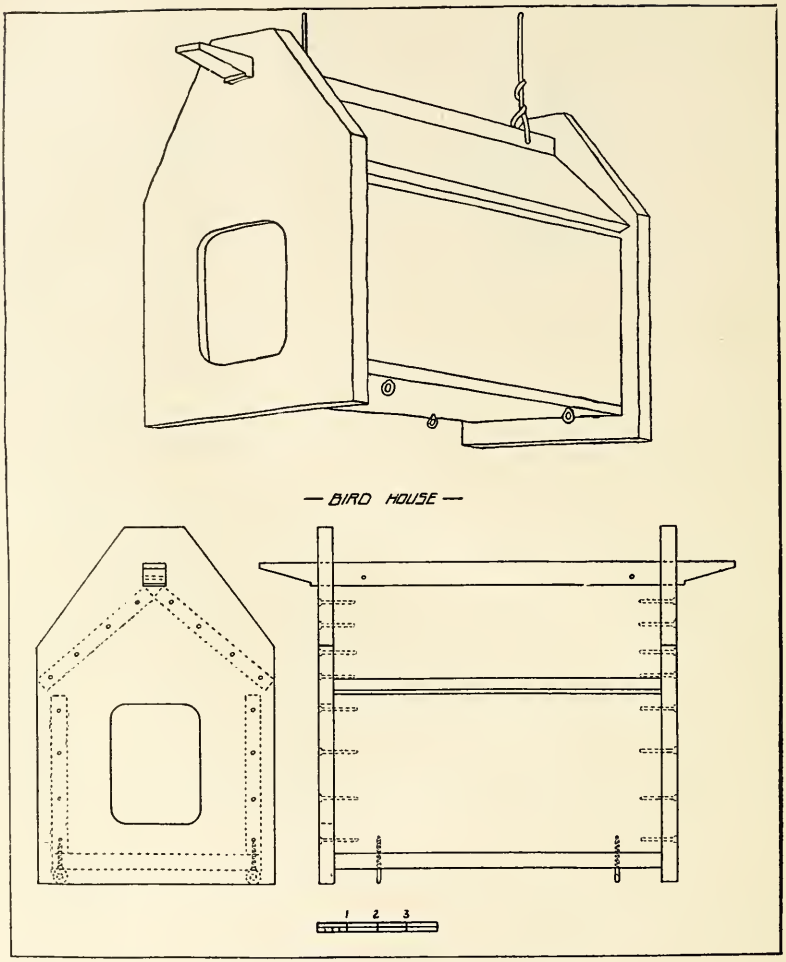
MANUAL training was introduced in the grade schools of Topeka, in the fall of 1902; at the present thirteen schools are carrying on this work. In the high school, manual training is treated as a department. Upon the completion of the specially constructed buildings in January, 1905, elective courses were offered in manual training; over 50 per cent. of the entire student body which number a few less than eleven hundred are enrolled in one or another of these courses. The domestic science laboratory will be equipped this summer and this course will be offered at the opening of the fall term.



BREVITIES

THE drawing reproduced above was sent to us by Harris W. Moore of Watertown, Mass. The problem involves mechanical drawing, woodworking, designing, and leather tooling. This has been popular with grammar-grade students during the past year.

We are pleased to announce the judges' decision on Competition No. 3. In every respect the results were more satisfactory than in either of the previous ones; the designs were more carefully thought out and in most cases the draftsmanship was much better. The judges were Ira S. Griffith, director of manual training at Oak Park and Associate editor of American Carpenter and Builder, William T. Bawden, director of manual training, Illinois State Normal University, and the Editor. They took into consideration the four points named in the announcement; (a) suitability, (b) construction, (c) proportions and design, (d) draftsmanship. In reference to some of the designs there was considerable difference of opinion but awards were finally made as follows: First prize, kennel, Edwin V. Lawrence, Peoria, Ill.; Second prize, Swiss bird house, A. C. Navell, Des Moines, Ia; third prize, bird house, Ray L. Southworth, Minneapolis, Minn.; honorable mention, bird house, Harris W. Moore, Watertown, Mass. and a bird house, Herman W. Williams, Haverhill, Mass. We give herewith the drawings of the first and third. The second and fifth may be found on advertising pages XVIII and XXII. The fourth will appear in the October number.



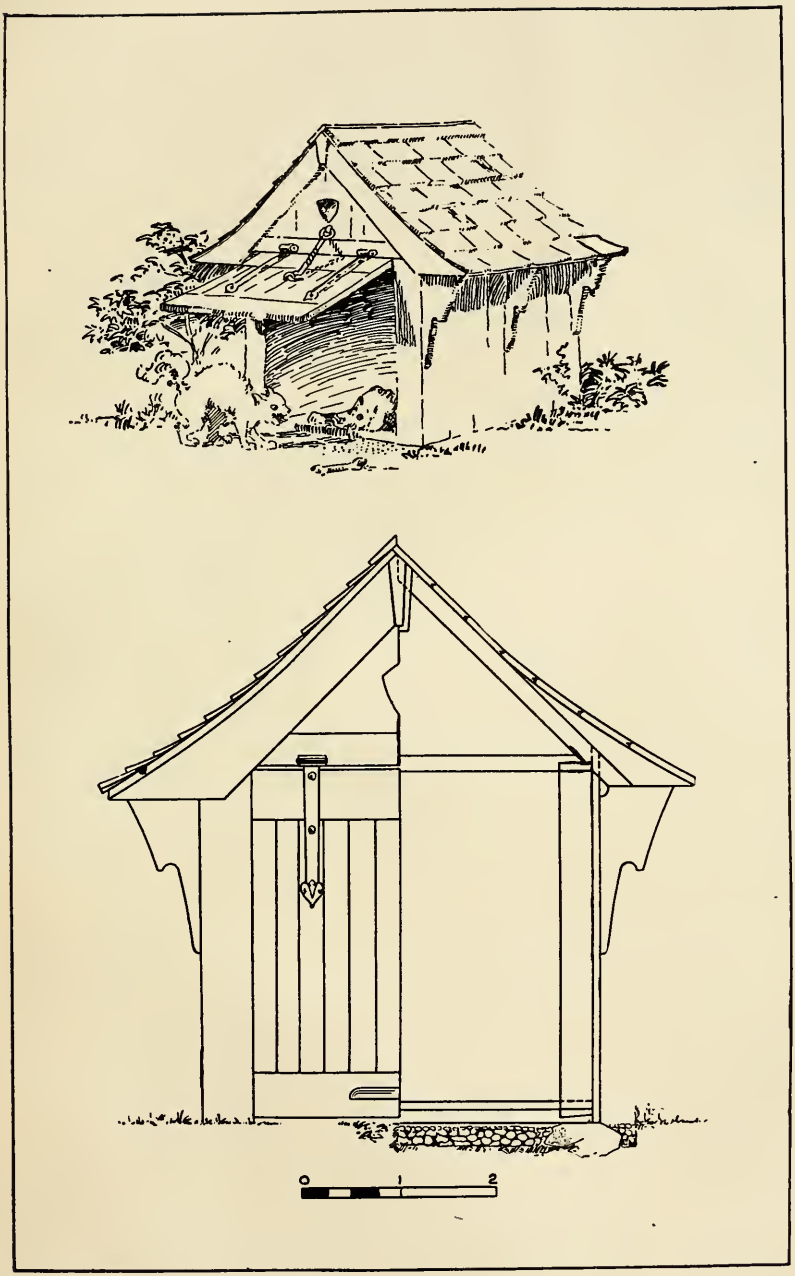
THIRD PRIZE—RAY L. SOUTHWORTH.

Mr. Southworth says of his design, "The drawings herewith, show a house intended for doves, squirrels or birds; if desired for the use of wrens, blue-birds and such small birds, it should be made one-half size.

The door is made large enough, so that a robin may fly and light in the door—there is only one opening so that when desired, the occupant may easily barricade the door.

The house is finished by painting or better by a suitable creosote stain, as it is to be exposed to all weather—creosote is not a friend to vermin.

Just under the eaves is an opening to admit light and air for ventilation; it also serves as a window for the occupant to see about him."



KENNEL OR DOGHOUSE

FIRST PRIZE—EDWIN V. LAWRENCE.

REVIEWS.

World at Work Series. Edited by Samuel T. Dutton. Book I, Fishing and Hunting by Sarah M. Mott and Maude Barrows Dutton. Book II, In Field and Pasture by Maude Barrows Dutton. American Book Company, 1905, 7¼ by 5 in.; pp., Book I 190, Book II 127, richly illustrated.

Correlated Hand-Work, Book I. By J. H. Trybom and Regenia R. Heller. Speaker Printing Co., Detroit, Mich., 1905. 9x6 in.; pp. 162; illustrated; price $1.25.

These two series of books represent the latest published efforts to correlate handwork with the established lines of school work of the primary grades. While they are different in form and not wholly the same in purpose they are especially interesting when studied together.

The World at Work Series is a group of supplementary readers with a few suggestions for handwork appended; the Correlated Hand-Work Books give full notes on the handwork and merely name by title the supplementary reading recommended. One series is in a measure the complement of the other. One is intended especially for the pupils, the other is definitely a teacher's handbook.

As a series of supplementary readers The World at Work Series is excellent. Indeed it represents a very high type of text-book making both in form and content. In the two books at hand one finds the leading facts of the social and industrial life of many of the distinctive groups of people now living on the earth. The material for both text and illustrations has been gathered from the most authoritative sources and woven together into stories of real merit. The titles in the first book are "In Eskimo Land with Hans," "In the Woods with Red-Feather," "In the Philippines with Tando," and "In Alaska with Ola." In the second book the pupil becomes acquainted with the Pueblo girl, the Navajo boy, the children of Egypt, Tibet, Russia, the Alps and other strange lands. They cover a new field, and one closely related to handwork. As teacher's helps in teaching handwork, however, they are not complete enough, nor do they sufficiently take into consideration present school limitations. Possibly, however, they may do good service in helping to remove some of these limitations.

In Correlated Hand-Work, on the contrary, special pains has been taken to adapt the books to the conditions existing in the public schools. The authors believe "there is little to be gained by advocating methods that can be carried out only with small classes under specially favorable conditions." Possibly this point of view has limited the authors unduly in their selection of material, and the sizes in which it is supplied, but they have certainly produced a book that is of immediate practical value to teachers of large classes, working under severe limitations as regards space and material for handwork. Moreover, while their outlines are definite, even to furnishing the working diagram, perspective view of the finished object, list of material and steps in the process, the method recommended is intended to stimulate the maxium of thought on the part of the pupil, and there is left ample opportunity for extension of the work by the teacher who has the power and desire to do so.

The first chapter deals with social studies—the school, the home, home occupations, clothing, food; the second with primitive life—the Indian, the Eskimo, ancient

shepherd life; the third with holidays and historical events—Thanksgiving, Christmas, Washington's birthday, Easter, Columbus; the fourth with a variety of occupations and busy work. The materials employed are all inexpensive, being paper and clay with occasional addition of cardboard, yarn, raffia, and wood.

Each of these series is calculated to supply a present demand and we shall watch with interest for the later volumes. —B.

Wood Pattern-Making. By Horace Traiton Purfield of the University of Michigan. Published by the Author, 1906; 5½x8 in., pp, 250, 153 illustrations; price $1.50.

The first eight chapters of this book are devoted to the consideration of the fundamental principles of the molder's work and how the pattern-maker has to apply these and other principles to his work. The remaining chapters give detailed explanations of methods used in making such patterns as glands, plate work, pulleys, gears, pipe fittings, etc. An appendix occupies fifty-eight pages and is devoted to the care and use of woodworking tools.

This book is intended to fill a long felt want in technical and engineering schools for a book giving the fundamental principles and elementary practice of pattern-making. It will without doubt accomplish its purpose to a large extent, but it is to be regretted that it gives the impression of too hasty preparation and is lacking in attention to details that such a work deserves. Some of the illustrations are not clear and are poor in execution.

Bradley Polytechnic Institute Clinton S. Van Deusen.

Industrial Education and Industrial Conditions in Germany. Special Consular Reports, vol. xxxiii. Published by the Bureau of Statistics, Department of Commerce and Labor, Washington, D. C., 1905; 6×9 in.; pp. 323.

This state document is a miracle-play, sermon and statesmen's hand-book, all in one. It tells things and shows pictures that every good citizen from the Atlantic highlands to the Pacific slope should hear and see. Statistics of industrial education make dry reading, but when one commercial people sees a neighboring nation displaying the activity which Germany is now showing in industrial training in every commercial vein and artery, then it's time for people number one to sit up and take notice.

This volume is a most important contribution to the literature of industrial education. Its force lies not in arguments for the necessity of such training, but in pictures and descriptions of a score of German cities in which industrial and technical schools are housed in palaces, and highly specialized training is being given—now, to-day—by highly trained specialists in scores of industries. The reader who ponders this report will need small argument besides, to make him an advocate of industrial schools—good schools equipped to turn out the best of artisans. He will also have made plain to him the reason for that now omnipresent commercial hall-mark: "Made in Germany." —H.

Report of the Commission on Industrial and Technical Education. (The Douglas Commission.) Published by the State of Massachusetts, 1906. 6×9½ in.; pp. 196.

This report bids fair to be an epoch-making document, chiefly by reason of its radical recommendation in favor of the establishment of an industrial school system apart from the public school system of the state.

The presentation of their case, their conclusions and the legislative bill with which they would make their recommendations effective, the Commissioners include in the first twenty-five pages of the present volume. The balance is made up of the report of a sub-committee which undertook to find out whether the years from fourteen to sixteen really are "wasted" and if so, why this is, and what these years might mean to the boys and girls who waste them. A chapter on Industrial Education in Europe, and an address or two is appended. As a whole, the report makes highly interesting reading. No one anxious to be in touch with the increasing movement toward industrial training can afford to ignore it. —H.

The Economics of Manual Training. By Louis Rouillion. The Derry-Collard Company, New York, 1905. 5½×8 in.; pp. 174, illustrated; price, $2.00.

The November, 1901, number of the *Teachers College Record* was a monograph on "The Economics of Manual Training" by Professor Rouillion. This was the most comprehensive thing that had appeared on the subject and was sent out in so attractive and convenient form that the demand for it exceeded the supply. The present volume by the same author is a revision and enlargement of this momograph and stands unique as a text on manual-training equipments and the cost of maintaining the several kinds of manual-training work.

The book begins with the elementary school, treating each kind of work separately, as clay modeling, cardboard construction, weaving, sewing, bent iron work, knifework, woodworking, etc. Under each subject a complete list of necessary tools is given with their cost, also the cost of maintenance. Manual training centers are then considered, followed by high-school equipments. The list of tools, illustrations of rooms, benches, and courses, and the floor plans of rooms and buildings add much to the value of the book. —B.

Text Books of Art Education, Book VII. By Hugo B. Froehlich and Bonnie E. Snow. The Prang Educational Company, 1905, 7×8¾ in.; pp. 126; price, 55 cents.

Book VII is no less interesting than the first six of the series. All are models of artistic textbook making and cannot fail to raise art standards in the schools. The volume before us opens with a chapter entitled "Out of Doors." This is an especially helpful chapter on landscape rendering and composition. For a model, one of Charles H. Woodbury's delightful pencil sketches is given as well as numerous studies by the authors. The second chapter treats "Growth, Blossom Fruit," and deals with nature drawing. The third is "Life and Action," being a chapter on figure drawing. Then follow "Beauty in Common Things"—still-life drawing in pencil and color, "Apparent Direction of Edges and Outlines"—practical perspective, "Measuring and Planning" —mechanical drawing and lettering, "Design," giving emphasis to fitness, color and application to objects of use. This series of books is intended for the use of pupils, but every teacher of the manual arts is sure to find it helpful for reference. —B.

The following have been received:

The Changing Order: By Oscar Lowell Triggs. Oscar L. Triggs Publishing Co., Chicago, 1905. 5½×8 in.; pp 300; price, $1.50. Reserved for later notive.

Drawing Syllabus for Secondary Schools, New York State Education Department. Albany, N. Y., 1905. Outlines of work in freehand object drawing, designing, and mechanical drawing.